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DECEMBER

THE PONIES AND THE MICE

When, at Christmas time, the six little Shetland ponies—so glossy, so bedizened, so demure—draw into our view the marvellous and gleaming coach of Cinderella, does anybody think about mice? No. When Hamlet, like a spin bowler fingering the new ball, bends upon the skull in his hand a pregnant, speculative glance, we are acutely aware of Yorick, and beyond the omelette which the clever conjuror produces from his hat we inescapably apprehend the gold watches which were—as far as any of us could see—its principal ingredients. But the little ponies somehow atrophy our sense of the dramatic. We think of them only as ponies. Our imaginations do not even toy with the interesting fact that they are, *au fond*, mice. It is quite right that this should be so; for although children are stern realists the pantomime is an escapist institution, and once they begin to see through its odd but conventional illusions—to notice that the Principal Boy is a girl and the Ugly Sisters are men, to point out to each other the wires upon which the fairies levitate—it is a sign that they are getting too old for this type of entertainment. Next year we shall have to try and find something rather more grown-up. As far as they are concerned, the ponies (or, if you prefer it, the mice) will go into cold storage until—by a metamorphosis at present even harder to believe in—the children are transformed into parents themselves.

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BRITISH MEDICAL JOURNAL

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TREATMENT OF SKIN DISORDERS WITH A.C.T.H. AND CORTISONE

FIRST REPORT OF THE MEDICAL RESEARCH COUNCIL PANEL ON THE DERMATOLOGICAL APPLICATIONS OF A.C.T.H. AND CORTISONE

In 1951 Sulzberger *et al.* recorded 14 cases of atopic dermatitis treated by oral cortisone, and, of these, 12 showed an immediate good response, one a fair response, and one an initial response but subsequent relapse. Recurrence followed cessation of treatment, though improvement continued when hormonal treatment was maintained. Hopkins *et al.* (1952) reported good response in each of eight patients in from one to four days after 100 mg. of A.C.T.H. (corticotrophin) daily or 200 mg. of cortisone, and three patients cleared entirely. All relapsed when treatment was stopped, but four who were treated again with a maintenance dose of 25–50 mg. of cortisone remained reasonably clear. Some trouble was encountered owing to lack of resistance to pyogenic infection. Numerous other references to a small series of cases are given by Steiner and Frank (1952), who themselves reported on three patients.

Similar results have been obtained in constitutional eczema (Sulzberger *et al.*, 1951). According to Sulzberger and Baer (1952), nummular eczema, eczematous eruptions of the hands, and atopic dermatitis respond best to A.C.T.H. or cortisone; seborrhoeic dermatitis is less certain in its response. In dermatitis venenata the immediate response leads frequently to permanent cure provided the external irritant is eliminated (Hopkins *et al.*, 1952). Sulzberger *et al.* (1951) obtained an excellent response in eight out of ten patients, in five of whom there was wide secondary spread; five of the ten were clear in ten days.

Exfoliative dermatitis is a more heterogeneous group and the response to treatment has varied accordingly. In general, where the eruption has been due to sensitivity to some drug used locally or internally the improvement has been prompt and often permanent. West (1952) reported three cases of generalized exfoliative dermatitis of this type, all of which cleared dramatically. Jekel (1952) obtained rapid improvement in a resistant case of gold dermatitis, as have other writers; and it has been suggested that these drugs are more effective than dimercaprol in dermatitis due to heavy metals (Steinberg and Roodenburg, 1951).

There are fewer reports on generalized erythroderma of the idiopathic type or of the type associated with reticulosis. Hopkins *et al.* (1952) report a case of idiopathic erythroderma which improved remarkably but required a maintenance dose of 200 mg. of cortisone three times a week to prevent a relapse. Downing (1952) watched for over two years a case of severe exfoliative dermatitis in which the eruption promptly recurred whenever steroid therapy was stopped. Sulzberger *et al.* (1951) observed 75–100% reduction of erythema, scaling, and pruritus within a week in four patients with "exfoliative dermatitis due to various causes," but all relapsed immediately on cessation of treatment. One case receiving maintenance dosage remained clear.

Scope of the Present Trials

The panel appointed by the Medical Research Council to investigate the use of A.C.T.H. and cortisone in the treatment of skin disease and to conduct clinical trials began work in the spring of 1950.

It was decided, in the first instance, to cover a wide field, with emphasis on certain common, difficult, or serious affections. The investigation was conducted by members of the panel at the centres in which they worked. The early investigation suggested that cortisone and A.C.T.H. were likely to be of use in the treatment of Besnier's prurigo, exfoliative dermatitis, and eczema, and this report describes the use of the hormones in those conditions.

It was realized that assessment of the effects of treatment would be difficult, many of the affections under consideration being of unknown aetiology and subject to natural exacerbations and remissions, the causes of which are not always apparent. The difficulty of assessment was increased by the fact that the therapeutic trials were conducted in hospital, where the change of environment, the investigations demanded by such treatment, and the knowledge that a new drug was being employed were all calculated to provoke changes in the course of the disease, independent of those caused by the drug. These effects were, so far as possible, considered in arriving at a judgment, but two further precautions were taken in the early stages of the investigations: treatment was not started until the patient had been in hospital for a reasonable period to adjust himself to the change of environment and become stabilized; and, secondly, the trials were conducted on the lines of a "cross-over experiment," the hormone being administered for a period of ten to twenty-one days, then withdrawn for a similar period and subsequently administered again for the same period. In addition, a few patients were given "dummy" injections or tablets in order to provide adequate control of the treatment.

Dosage varied from 100 to 150 mg. of cortisone or 50 to 100 i.u. of A.C.T.H. daily, often reduced toward the end of the course, or cortisone being replaced by a diminishing dose of A.C.T.H. An occasional patient received as much as 200 mg. of cortisone daily and a few were treated by intravenous drip of A.C.T.H., 10 i.u. daily. There was no significant difference in dosage

*The members of the panel are: Dr. J. T. Ingram (chairman), Dr. R. T. Brain, Dr. C. N. D. Cruickshank, Dr. G. B. Dowling, Dr. P. G. H. Gell, Dr. W. N. Goldsmith, Dr. D. A. Long, Professor G. H. Percival, and Dr. F. F. Hellier (secretary).

TABLE I.—*Idiopathic Exfoliative Dermatitis*

Case No.	Sex and Age	Duration of Symptoms	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Summary of Effects
1	M 62	?	1	6 weeks	A.C.T.H., 2,775 i.u. Cortisone, 700 mg.	Improvement within 24 hours. Cessation of exfoliation and irritation by 7 days. Long-term effects not known
2	M 62	1 year	3	11 ,,	A.C.T.H., 5,375 i.u.	Exfoliation controlled by A.C.T.H. Complete relapse after 1st course (3 weeks) and after 2nd course (10 days). After 3rd course (6 weeks) patient was maintained by 25 i.u. A.C.T.H./day for 10 days. Remained in good condition 6 months later
3	M 59	9 months	2	15 ,,	A.C.T.H., 3,238 i.u.	Improved immediately but complete relapse after 1st course (3 weeks). After a long second course (12 weeks) had only minor relapse and remained well one year later
4	M 72	1 year	1	6 ,,	A.C.T.H., 2,450 i.u.	A.C.T.H. controlled symptoms, the dose being reduced after 4 weeks to 25 i.u./day. Given *x* rays for final cure
5	F 65	18 months	1	7 ,,	Cortisone, 4,200 mg.	Immediate cessation of exfoliation. Relapsed on course of "dummy" injections. Maintenance of 25 mg./day required over 3-months period to prevent recurrence
6	M 66	1 year	2	16 ,,	A.C.T.H., 700 i.u. Cortisone, 7,875 mg.	Clinical remission induced. Attempt to "tail-off" the drugs were abortive. Maintenance not instituted. Died 14 days after stopping cortisone
7	M 64	2 years	2	4 ,,	A.C.T.H., 700 i.u. Cortisone, 1,000 mg.	Immediate control of exudation and exfoliation. Relapse after 1st course (10 days). Deteriorated only slightly after second course and remained well 15 months later
8	M 69	1 year	3	16 ,,	A.C.T.H., 700 i.u. Cortisone, 4,600 mg.	Symptoms controlled; relapse after 1st course (11 days) being severe but after last course only mild. Remained well 15 months later
9	F 27	7 weeks	3	6 ,,	A.C.T.H., 1,155 i.u. Cortisone, 1,225 mg.	Symptoms controlled by A.C.T.H. and cortisone. Relapse between courses. Remained well after third course
10	M 38	6 ,,	3	9 ,,	Cortisone, 5,740 mg.	Immediate disappearance of exudation and exfoliation. Severe relapse after 1st course (7 days). Finally no relapse. Required *x* rays to soles and palms
11	M 61	3 months	2	10 ,,	A.C.T.H., 2,825 i.u. Cortisone, 850 mg.	Responded rapidly to A.C.T.H. i.v. drip, 25 i.u. daily. Relapsed on withdrawal, and this was not checked by cortisone. Relapse controlled by A.C.T.H. 100 i.u./day i.m., and after final course remained well. No relapse in last 9 months

TABLE II.—*Exfoliative Dermatitis Secondary to Psoriasis*

Case No.	Sex and Age	Duration* of Symptoms	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Summary of Effects
12	M 36	3 years	3	9 weeks	A.C.T.H., 2,945 i.u. Cortisone, 750 mg.	Rapid improvement and reduction of scaling on A.C.T.H. Relapse on withdrawal inadequately controlled by cortisone. Final course of A.C.T.H. produced remission. Had subsequent leucotomy associated with skin improvement
13	F 67	10 days	2	20 ,,	A.C.T.H., 700 i.u. Cortisone, 6,900 mg.	Improved by cortisone or A.C.T.H. but relapsed on "dummy" injections. Recovery slow and required further maintenance of cortisone 25 mg./day for 5 months
14	F 48	3 months	1	8 ,,	A.C.T.H., 900 i.u. Cortisone, 4,060 mg.	Initial improvement but acute exacerbation while under treatment. No beneficial effect
15	M 52	Many years	2	7 ,,	??	Rapid response and improved till virtually cured. Relapse on withdrawal. Required prolonged maintenance of cortisone 50 mg./day as out-patient
16	F 68	6 months	1	3 ,,	A.C.T.H., 700 i.u.	Completely healed in 2 weeks. Remained well at least 3 months afterwards
17	M 31	4 ,,	?	19 ,,	A.C.T.H., 4,300 i.u. Cortisone, 2,725 mg.	Consistent improvement with cortisone and A.C.T.H., relapsing when dose reduced below 40 i.u. A.C.T.H. daily. Final relapse after 2 months at this dose
18	F 42	4 ,,	1	3 ,,	A.C.T.H., 1,400 i.u.	Rapid disappearance of exfoliation. Some psoriatic patches remained. No recurrence in 5 weeks after end of course

* Refers to exfoliation, not total duration of psoriasis.

between those who responded immediately and those who failed to do so, or between those who relapsed and those who remained well.

Most patients received ascorbic acid by mouth, 100 mg. twice or thrice daily. In some patients the sodium chloride intake was restricted and potassium chloride, 20 gr. (1.3 g.) t.d.s., was administered, more especially if the urinary output and the weight suggested fluid retention.

Exfoliative Dermatitis*

Eleven patients with idiopathic exfoliative dermatitis and seven patients with exfoliative dermatitis secondary to psoriasis were treated (Tables I and II). No case of exfoliative dermatitis caused by the ingestion of heavy metals or a drug reaction has been encountered so far, and only one patient suffering from exfoliative dermatitis secondary to reticulosis has been treated. Attention will be confined to the first two groups.

Idiopathic Exfoliative Dermatitis

The 11 patients in this group had suffered from exfoliative dermatitis for periods of from six weeks to two years—their average age being 59 years. Nine were males. The group included four cases confirmed histologically as being of the lipomelanic type.

Cortisone was generally used in doses of 100 mg. daily either by mouth or intramuscularly, and A.C.T.H. was given in doses varying from 50 to 100 i.u. daily. Except towards the end of the treatment, when *x*-ray therapy was sometimes used, no other treatment apart from bland local applications was given. In general the hormones were given for an initial period of one to three weeks followed by a rest interval; second, third, and maintenance courses were given when they were considered advisable on clinical grounds.

Results of First Course.—Improvement in the clinical condition was observed in all patients. This was usually striking and became apparent by the third day. The irritation, scaling, and exudation were greatly reduced. In one patient (Case 7) the reduction of scaling was confirmed by daily weighing of scales from the bedding, which showed a reduction from 12 g. to nil during the first week of treatment. The improved condition of the patients was maintained while they were kept on doses of 50 mg. a day and above, but relapse occurred if during the first three weeks the dose was reduced below this level. Two patients (Cases 1 and 4) were given initial courses of six weeks' duration, the dose being gradually reduced during the last fortnight; their relapse was not severe, and it was considered

*The Panel had the assistance of Dr. H. R. Vickers and Dr. I. B. Sneddon in this survey of exfoliative dermatitis.

TABLE III.—*Constitutional Eczema*

Case No.	Sex and Age	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Initial Effects	Final Assessment
1	M 36	1	2 weeks	Cortisone, 240 mg. A.C.T.H., 320 i.u.	Initial relief from irritation	Relapse not severe
2	M 28	2	5 „	A.C.T.H., 1,775 i.u. Cortisone, 1,700 mg.	Improved	„ „ „
3	F 52	1	3 „	Cortisone, 2,300 mg. A.C.T.H., 500 i.u.	„	Improvement maintained
4	M 45	1	17 days	Cortisone, 500 mg. A.C.T.H., 1,200 i.u.	Deteriorated on cortisone but improved by A.C.T.H.	Follow-up not possible
5	F 69	1	19 „	Cortisone, 1,475 mg.	Rapid improvement	Treatment complete with *x* rays
6	M 52	2	25 „	Cortisone, 1,300 mg. A.C.T.H., 1,000 i.u.	Slight improvement	Slight improvement maintained
7	M 46	2	6 weeks	Cortisone, 1,050 mg. Cortisone, 1,400 mg.	Improved	No final benefit
8	M 50	2	7 „	A.C.T.H., 1,750 i.u. Cortisone, 2,100 mg.	„	Improved but not cured
9	M 70	1	5 „	Cortisone, 2,410 mg. A.C.T.H., 1,600 i.u.	Initial improvement of skin	Died—bronchopneumonia
10	M 63	1	5 „	Cortisone, 4,725 mg.	Improved	Complete relapse
11	M 37	1	16 days	Cortisone, 1,600 mg.	Slow improvement	Mild relapse
12	F 17	1	3 weeks	Cortisone, 1,500 mg.	Initial cure	Slight relapse—given T.A.B. vaccine
13	M 75	1	7 „	A.C.T.H., 3,070 i.u.	Improvement; scaling reduced	Recurrence 6 weeks after discharge
14	M ?	1	21 „	A.C.T.H., 700 i.u. Cortisone, 9,575 mg.	Improved	Maintenance of 150 mg. twice weekly failed to control
15	F 71	1	3 „	Cortisone, 1,475 mg.	Disappearance of most lesions	Relapsed treated by *x* rays. F.-U. at 2 years —no serious recurrence
16	M 69	1	16 „	A.C.T.H., 7,200 i.u.	Great improvement	Residual lichenification treated with *x* rays and tar pastes
17	M 64	2	9 „	A.C.T.H., 1,500 i.u. Cortisone, 2,625 mg.	Acute manifestations disappeared	Some relapse but hormones greatly improved his condition
18	M 57	1	4 „	Cortisone, 3,000 mg.	Condition cured	Mild relapse—residual lichenification only
19	M 61	1	6 „	Cortisone, 3,300 mg.	Acute lesions disappeared	Residual lichenification treated by *x* rays
20	F 79	1	5 „	A.C.T.H., 2,600 i.u.	Most lesions disappeared	
21	M 43	1	16 days	Cortisone, 1,600 mg.	Lesions cleared	Relapse—patient discharged himself
22	M 60	1	7 „	Cortisone, 950 mg.	No benefit	Not benefited; treated with T.A.B.
23	F 57	1	10 „	Cortisone, 400 mg.	Improved	Full relapse
24	M 57	1	21 „	Cortisone, 1,700 mg.	„	„ „
25	M 64	2	23 „	Cortisone, 1,300 mg. A.C.T.H., 660 i.u.	„	Died
26	M 42	2	5 weeks	A.C.T.H., 1,325 i.u. Cortisone, ?2,000 mg.	„	Developed melancholia during second course. Later given T.A.B.

that no further hormone treatment was required. One of them was subsequently given *x* rays to remove residual patches of lichenification. A third patient (Case 5) required prolonged maintenance dosage of 25 i.u. of A.C.T.H. a day for three months after an initial course of seven weeks. In the remaining eight patients given courses of one to three weeks' duration the relapse on withdrawal of the hormone was complete.

Results of Second Course and Subsequent Treatment.—The eight patients who had relapsed were given a second course of A.C.T.H. or cortisone. In six of these, immediate remission of symptoms was observed. The remission occurring in the seventh patient (Case 2) was slow and could only be brought about by doubling the previous dose of A.C.T.H. The relapse after the first course in the eighth patient (Case 11) was not controlled by the usual dose of cortisone (100 mg. a day), but was checked by A.C.T.H. He had previously responded to A.C.T.H.

The duration of the second course was varied considerably, as in some instances attempts were made finally to "tail-off" the treatment. Two patients (Cases 7 and 11) remained well after a second course of three weeks' duration, and follow-up at fifteen months and nine months respectively showed that no relapse had occurred. In the remainder any cessation or reduction of the dosage within the first three weeks of the second course was followed within 24 hours by relapse. The relapses, however, were less severe and could in each instance be controlled by resuming the original dose. One patient (Case 9) required only a further week's treatment after a second course of 14 days; five patients required treatment for periods of up to 14 weeks. One patient (Case 6) died after this third course, having been treated in all for 16 weeks. The remaining four, however, remained well when hormone therapy was eventually stopped. Three of these have been reviewed at six, twelve, and fifteen months respectively, and have remained well.

Thus, excluding the patient who died, 9 out of 10 patients were finally benefited by treatment and the other remained in good condition on a maintenance dose of 25 i.u. of A.C.T.H. daily.

Universal Psoriasis Simulating Exfoliative Dermatitis

There were seven patients in this group, three being males. The average age was 49. The duration of the exfoliative crisis varied from ten days to several years (exact number unknown).

Results.—All patients except one improved during the first course on cortisone or A.C.T.H. The exception was a patient (Case 14) who, after initial improvement, developed an acute exacerbation while still under treatment, which was accordingly discontinued. Two patients (Cases 14 and 15) had only mild relapses after three weeks' treatment, and are known to have remained well for three months and five weeks thereafter respectively. The remainder relapsed completely and were given further treatment. It was noted in one case (No. 12) that the relapse was inadequately checked by cortisone but was controlled by A.C.T.H. In Case 14 the recovery was slow. Except in the two patients mentioned above (Cases 16 and 18) it proved impossible to keep the skin healthy without recourse to the hormones. Maintenance doses of 25 mg. of cortisone daily for five months were required for Case 13 after 20 weeks of full treatment; 40 i.u. of A.C.T.H. a day was required for Case 17, and eventually relapse occurred in spite of two months' maintenance at this level. The third patient (Case 15) required 50 mg. of cortisone a day or A.C.T.H. The last patient in this group, Case 12, developed hypomania after nine weeks' treatment, and was subjected to prefrontal leucotomy. His skin condition subsequently improved.

Eczema

Eighty cases of eczema have been treated by or in association with members of the panel. As the term eczema covers a wide range of conditions differing clinically and aetiologically, the cases have been grouped in six categories: (1) constitutional eczema,* (2) eczema from external irritants,

*This group concerns those patients in whom the inherent tendency to eczema was the major clinical problem though other factors of minor significance as considered in group 2 to 6 may have played a part in the aetiology. It does not include patients with Besnier's prurigo.

(3) seborrhoeic eczema, (4) nummular and discoid eczema, (5) hypostatic and varicose eczema, and (6) eczema from external allergens. It will be noted that these categories cover the range of eczematous conditions with the exception of infantile eczema.

The treatment given to the patients with eczema followed the general plan described in the preamble to this report, and is shown in detail in Tables III to VIII.

Constitutional Eczema

Twenty-six patients suffering from constitutional eczema were treated, 20 being males. The average age was 52. The clinical condition of the patients varied, but in general the acute weeping type of eczema was predominant. The majority of the patients had multiple lesions and the condition was long-standing. In 13 patients the disease was up to one year's duration and the remainder from one to twenty years. Nineteen patients received one course, seven patients received two courses, the mean duration of actual hormone therapy being five weeks.

Results.—Only one patient showed no improvement when treated with A.C.T.H. or cortisone. The response in the remainder varied from complete disappearance within three weeks to a gradual improvement over 21 weeks. In general, however, the more acute manifestations of the disease—for example, irritation, vesiculation, weeping, and scaling—tended to disappear, while lichenified lesions persisted. Unfortunately relapse was invariable when the drugs were withdrawn. Seven patients relapsed completely to their former state; nine remained in an improved state. A further seven were improved enough to be treated by *x*-radiation, T.A.B. vaccines, or coal-tar preparations. One patient died, and adequate follow-up was not possible in the remaining two.

Eczema from External Irritants

There were 14 patients in this group. The differentiation from the former group is based mainly upon the history of the original attack and does not imply a lack of constitutional factors in the cases included. The duration of the disease was, however, shorter. Seven had suffered for periods up to one year and seven for periods up to six years. The average age was 43 years. Five were males. Nine patients received one course and five received two courses. The mean duration of hormone therapy was five weeks.

Results.—All the patients improved while under treatment, complete remission being obtained in two cases. Relapse when the hormones were withdrawn occurred in all but one patient, who remained well four months after treatment. Relapse was complete in four cases, while eight received some benefit from the treatment. Three of the latter were subsequently given *x* rays with success. One patient discharged herself after relapse.

Seborrhoeic Eczema

Of these patients seven were male and three were female, the average age being 44+ years. Five patients received one course and five received two courses. The average period of therapy was eight weeks.

Results.—The effects of the hormones appeared to be less than in the previous two groups. Two patients were unaffected by treatment, and a further four, although initially improved, underwent complete relapse. Some lasting improvement was noted in the remaining four patients.

Nummular and Discoid Eczema

Ten patients were in this group. The clinical appearances of the cases varied from those with large confluent weeping

TABLE IV.—*Eczema from External Irritants*

Case No.	Sex and Age	No. of Courses	Duration of Treatment with Hormones	Total Dose	Initial Effects	Final Assessment
27	M 64	2	7 weeks	Cortisone, 2,250 mg.	Improved	No final benefit
28	F 44	1	7 ,,	Cortisone, 7,550 mg. A.C.T.H., 3,525 i.u.	,,	,, ,, ,,
29	M 38	1	17 days	Cortisone, 845 mg. A.C.T.H., 3,525 i.u.	Dramatic improvement	Improvement maintained for 3 months
30	F 54	1	4 weeks	Cortisone, 2,350 mg.	Improved	Remained improved but not cured
31	F 18	2	8 ,,	A.C.T.H., 1,800 i.u. Cortisone, 2,600 mg.	,,	Remained improved—given *x* rays
32	F 28	1	3 ,,	Cortisone, 2,000 mg.	,,	No final benefit
33	M 66	1	2 ,,	Cortisone, 1,400 mg.	,,	Became progressively worse
34	M 52	1	2 ,,	Cortisone, 1,450 mg.	Immediate response	Relapse satisfactorily treated by *x* rays
35	F 42	1	1 week	Cortisone, 700 mg.	Improved	Relapse not severe
36	M 38	1	?	Cortisone ? A.C.T.H. ?	Rapid improvement	Remained cured at 4 months
37	F 54	1	4 weeks	Cortisone, 2,350 mg.	,, ,,	Acute lesions cured—lichenified areas remain
38	F 18	2	12 ,,	A.C.T.H., 1,800 i.u. Cortisone, 2,600 mg.	Initial cure	Relapse after second course was slight—given *x* rays
39	F 28	1	3 ,,	Cortisone, 2,000 mg.	,,	Condition relapsed, patient discharged herself
40	F 59	2	6 ,,	A.C.T.H., 1,000 i.u. Cortisone, 2,000 mg.	Improved	Relapsed at end of second course

TABLE V.—*Seborrhoeic Eczema*

Case No.	Sex and Age	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Initial Effects	Final Assessment
41	M 44	2	5 weeks	Cortisone, 1,875 mg. A.C.T.H., 1,175 i.u.	Improved	Mild relapse but condition improved
42	M 36	2	4 ,,	A.C.T.H., 1,675 i.u. Cortisone, 900 mg.	,,	Slight improvement maintained
43	M 47	2	12 ,,	Cortisone, 3,585 mg. A.C.T.H., 2,000 i.u.	,,	Complete relapse
44	F 23	2	6 ,,	A.C.T.H., 4,300 i.u.	Greatly improved	Some relapse but generally improved
45	M 53	2	4½ ,,	Cortisone, 1,600 mg. A.C.T.H., 1,475 i.u.	Improved	Complete relapse
46	F 62	1	4 days	Cortisone, 300 mg.	No benefit	No benefit
47	F 59	1	24 weeks	A.C.T.H., 4,200 i.u. Cortisone, 16,100 mg.	Improvement while under treatment	Given Grenz rays with success while still under A.C.T.H.
48	M 18	1	17 days	Cortisone, 1,350 mg.	No benefit	No benefit
49	M 58	1	4 weeks	Cortisone, 1,750 mg. A.C.T.H., 525 i.u.	Improved	Mild relapse
50	M 45	1	14 ,,	A.C.T.H., 3,675 i.u. Cortisone, 3,062 mg.	,,	Some final benefit

and scaling areas to small discrete lichenified patches. Nine of the patients were males. The mean age was 42 years, and the duration of symptoms was relatively short—all less than one year. Five patients received one course only, four received two, and one received three courses. The mean duration of therapy was six weeks.

Results.—The results in this group were not impressive. Three patients were unaffected, and four of those who were initially improved underwent complete relapse at the end of treatment. The other three were improved enough for discharge or further treatment.

Hypostatic and Varicose Eczema

In this group were eight males and four females. The average age was 42. Two had eczema for less than one year, nine for periods up to thirty years, and in one instance information was not available. Five patients received one course only, six received two courses, and one received four. The mean period of treatment was seven weeks.

Results.—All the patients improved while on hormone therapy, but some relapse invariably occurred when the hormone was withdrawn, so that five patients received no ultimate benefit. The relapse in two patients was, however, slow, occurring at four weeks and six weeks later respectively. One patient has remained in an improved condition for one year. The remaining four were discharged in an improved condition or given other therapy. Two patients who suffered from secondary spread of eczematization were cured of this by the hormones.

Eczema from External Allergens

Eight patients with eruptions due to sensitization to drugs or chemicals were treated. Six were males. The average age of the group was 39. The substances causing the eruption are listed in Table VIII. Excluding one patient whose contact with rosewood in the course of his work had caused him to suffer from a rash for the past six years, the average duration of symptoms was six weeks.

Results.—All eight patients were rapidly and completely cured by A.C.T.H. or cortisone. In seven patients the cure remained permanent in the absence of known exposure to the sensitizing agent. The eighth, a man who was sensitive to rubber, continued to get mild pompholyx of the fingers and a mild scaly eczema of groins and penis in hot weather.

Effects of Cortisone and A.C.T.H. on Patch Tests.—It will be noted from Table VIII that the effects of cortisone and A.C.T.H. upon the patch test were investigated. Of four patients giving positive reactions before treatment, three gave no reaction while under treatment and one gave a reduced reaction. This finding was confirmed in four more cases. These patients had suffered from sensitization rashes previously, but had been cured without the use of cortisone or A.C.T.H. They gave positive patch tests to cetrimide (2), adhesive plaster (1), sulphanilamide (1). Each patient was given 100 mg. of cortisone daily, and on the second day of administration the patch test was repeated. In three of the four patients no reaction occurred; in the fourth the reaction was greatly reduced. The cortisone was stopped after the third day. The patient who was highly sensitive to adhesive plaster developed a mild reaction at the site of the test 24 hours later, clearly demonstrating the effectiveness of the cortisone cover.

Besnier's Prurigo

Twenty-six patients (18 male, 8 female) with Besnier's prurigo were treated with cortisone and/or A.C.T.H. Their ages ranged from 9 to 57 years (Table IX). All were marked or severe examples of the condition, and most had had it since infancy. There was no significant difference in response between the two sexes.

The immediate response to the first course was good in 16 of these patients. In those showing a favourable reaction, diminution of itching was usually noted about the third day, though sometimes it was noted within 24 hours, and at others not for a week. Exudation dried up and redness was

TABLE VI.—*Nummular and Discoid Eczema*

Case No.	Sex and Age	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Initial Effects	Final Assessment
51	F 56	1	4 weeks	Cortisone, 2,400 mg.	Improved	Improvement maintained over 2 months. Relapse or ? fresh attack
52	M 45	1	16 days	Cortisone, 1,480 mg.	,,	Given *x* rays with success
53	M 49	1	16 ,,	Cortisone, 1,600 mg.	,,	Full relapse
54	M 40	2	6 weeks	A.C.T.H., 1,800 i.u. A.C.T.H., 1,725 i.u.	Slight improvement	Condition not materially altered
55	M 47	2	5 ,,	Cortisone, 1,675 mg. A.C.T.H., 1,450 i.u.	Improved	Full relapse
56	M 39	1	8 ,,	Cortisone, 1,500 mg.	No improvement	No benefit
57	M 23	1	8 ,,	A.C.T.H., 2,500 i.u. Cortisone, 1,000 mg.	Gradually healed	No relapse
58	M 21	3	16 ,,	Cortisone, 3,080 mg. Cortisone, 1,850 mg. A.C.T.H., 750 i.u.	No evidence of definite effect of drugs	No benefit
59	M 72	2	8 ,,	Cortisone, 2,600 mg. A.C.T.H., 450 i.u.	No definite effect	,, ,,
60	M 29	2	18 days	Cortisone, 3,585 mg. A.C.T.H., 2,000 i.u.	Improved	Relapsed completely after each course

TABLE VII.—*Hypostatic and Varicose Eczema*

Case No.	Sex and Age	No. of Courses	Total Duration of Treatment with Hormones	Total Dose	Initial Effects	Final Assessment
61	M 35	2	3 weeks	Cortisone, 2,250 mg.	Improved	No final benefit
62	M 50	1	3 ,,	Cortisone, 1,875 mg.	,,	Improvement maintained
63	F 53	2	8 ,,	Cortisone, 3,550 mg.	,,	No final benefit
64	F 62	1	12 days	Cortisone, 600 mg.	,,	,, ,, ,,
65	F 69	2	7 weeks	A.C.T.H., 3,125 i.u. Cortisone, 1,950 mg.	,,	Relapse on withdrawal not severe
66	F 56	2	8 ,,	Cortisone, 3,525 mg.	Clear after second course	Complete relapse after 1 month
67	M 39	1	7 ,,	A.C.T.H., 1,000 i.u.	Improved	Relapse after 6 weeks
68	M 35	4	18 ,,	Cortisone, 6,350 mg. A.C.T.H., 2,945 i.u.	Slight improvement while under treatment	No benefit
69	M 70	2	9 ,,	Cortisone, 4,275 mg.	Improved by both courses	Slight relapse, but remained improved for 1 year
70	M 48	1	16 days	A.C.T.H., 1,450 i.u.	Improved	Full relapse; given T.A.B. and local treatment with success
71	M 53	2	4½ weeks	A.C.T.H., 1,450 i.u. Cortisone, 1,600 mg.	Initial slow improvement	Moderate relapse
72	M 43	1	16 days	A.C.T.H., 1,250 i.u.	Improved	Mild relapse—given T.A.B.

much less marked within about three to seven days, but lichenification was slower in clearing, and might still be present after three weeks even in symptom-free patients. The patients' general condition, particularly their mental attitude, was often strikingly better by the end of the first week. In eight patients the response was only moderate, and in two it was poor.

Eight patients were given a second course; of these, five responded as well to the second as to the first course, two responded moderately well each time, and one improved to a greater extent after the second course.

Of the 26 patients treated, the ultimate result in four was considered good—that is, the patient remained practically symptom-free and with only minimal eruptions for a period of at least six months; in five the results were assessed as moderately good, the patients remaining definitely better than before treatment though still showing some rash, and the rash in some instances seeming more amenable to treatment than previously; in 14 patients the condition returned to its original state, and in one or two it even seemed to be worse. In addition, one patient (Case 14) died seven days after the cessation of treatment, one remained satisfactory on a maintenance dose, and one was lost sight of. Cortisone was as effective in treatment as A.C.T.H. and was safer, but beneficial effects were achieved rather more slowly.

The patient who died seven days after the end of treatment was a boy aged 15 who had previously suffered from severe asthma; he died in status asthmaticus. It is possible that the reaction which ended fatally was in part a rebound reaction.

Complications of Hormone Therapy

Most of the complications encountered with the dosage employed were not serious, but a few were more grave. The dermatological affections dealt with in this report are not, in the majority of cases, dangerous, apart from some cases of exfoliative dermatitis. It was therefore not thought justifiable to employ these remedies in any heroic fashion which might cause serious physical ill-health or be hazardous to life.

Moonface was observed in eight patients, water retention in seven, and transient glycosuria in three.

Skin changes observed included: pigmentation of skin and in one case repigmentation of grey hair; blackheads; milia; folliculitis; and one case of miliaria crystallina. Warty lesions developed on the hands in two cases and hirsuties in one woman.

Psychological disturbances were recorded in six patients, including two who showed marked euphoria, one depression, and one hypomania. Both the latter were known to have had a previous history of instability, and the patient with hypomania was treated successfully by leucotomy.

There were four deaths. One man of 66 with exfoliative dermatitis died 14 days after stopping treatment, which had included 700 i.u. of A.C.T.H. and 7,875 mg. of cortisone. There was no post-mortem examination. A man of 64 with constitutional eczema died from left heart failure after 23 days' treatment with A.C.T.H., 660 i.u., and cortisone, 1,300 mg. A man aged 70 with constitutional eczema died from bronchopneumonia after five weeks' treatment with A.C.T.H., 1,600 i.u., and cortisone, 2,410 mg. A boy aged 15 with Besnier's prurigo died in status asthmaticus seven days after stopping treatment with cortisone, 825 mg., and A.C.T.H., 420 i.u.

Discussion

Exfoliative Dermatitis.—From experience in this series it appears that the response of exfoliative dermatitis other

TABLE VIII.—*Eczema from External Allergens*

Case No.	Sex and Age	Cause	Duration	Total Dose	Days of Treatment	Assessment	Patch Test	Effect of Cortisone on Patch Test
73	M 49	Rosewood	6 years	?	?	Rapid cure	Positive	?
74	F 34	Anti-pruritic cream	1 month	A.C.T.H., 1,400 i.u.	21	" "	Not done	Not done
75	M 59	Penicillin	5 weeks	Cortisone, 1,650 mg.	16	" "	" "	" "
76	M 52	Dettol	7 days	A.C.T.H., 975 i.u.	13	" "	" "	" "
77	M 20	Rubber	2 months	A.C.T.H., 525 i.u.	21	" "	Positive	Positive but reduced
78	F 17	Nickel	3 "	A.C.T.H.,150 i.u. I.V.	6	" "	Positive to 1% nickel sulphate	Completely abolished
79	M 36	Hair restorer	2 weeks	Cortisone, 300 mg.	3	" "	Not done	Not done
80	M 48	Adhesive plaster	2 months	A.C.T.H., 1,200 i.u.	29	" "	Positive	Completely abolished

TABLE IX.—*Besnier's Prurigo*

Case No.	Sex and Age	Days of Treatment	Total Dose	Immediate Result	Ultimate Result
1	F 19	21+21	Cortisone, 4,200 mg.	Definitely improved	Relapsed
2	M 20	21+21	Cortisone, 2,800 mg. A.C.T.H., 350 i.u.	Considerable improvement	Face remained clear but arms relapsed
3	F 19	21+21	Cortisone, 3,600 mg. A.C.T.H., 300 i.u.	Marked improvement	Very good, though still lesions on elbows
4	M 57	21+21	Cortisone, 3,600 mg.	Almost cleared after second course	Relapsed. Asthma a little better
5	F 22	21+21	Cortisone, 4,200 mg.	Smoother, but lichenification in flexures	Eczema relapsed in 3 weeks
6	M 17	21+21	A.C.T.H., 3,150 i.u.	Eczema almost clear after second course	Ultimate condition good
7	F 36	10	Cortisone, 1,000 mg.	No eczema at end of course	Improvement mostly maintained
8	M 27	20	Cortisone, 2,000 mg.	Definite improvement, but some lichenification	Relapsed
9	M 47	18	Cortisone, 2,025 mg.	Marked improvement	"
10	F 12	23	Cortisone, 1,000 mg. A.C.T.H., 390 i.u.	" "	Rapid relapse, but more easily controlled
11	M 26	10	Cortisone, 1,000 mg.	Only healing excoriations left	Relapsed
12	M 50	10+10	Cortisone, 2,000 mg.	Clear except on neck	"
13	F 12	13	Cortisone, 1,000 mg.	General improvement	"
14	M 15	11+9	Cortisone, 825 mg. A.C.T.H., 420 i.u.	Minimal lichenification. Better than ever before	Died 7 days after in status asthmaticus
15	M 16	21	Cortisone, 1,810 mg.	Improvement; exudation dried up	Relapsed after 1 month
16	M 21	21	Cortisone, 2,375 mg. A.C.T.H., 350 i.u.	Hands and feet cleared but some lichenification in flexures	Only a few minor attacks subsequently. Ichthyosis unchanged
17	M 29	28	Cortisone, 2,350 mg. A.C.T.H., 450 i.u.	No marked effect	Relapsed
18	F 14	21	Cortisone, 720 mg.	Good but not rapid response	No follow-up
19	M 14	5	A.C.T.H., 60 i.u. intravenously	Almost completely clear	Relapsed completely
20	M 18	10+7	A.C.T.H., 2,000 i.u.	Discharged symptom-free	Relapse
21	M 18	13	A.C.T.H., 1,250 i.u.	Skin clear	Worse
22	M 24	14	Cortisone, 2,450 mg.	" "	Remained free except little on hands and ankles
23	M 20	21	A.C.T.H., 2,300 i.u.	Eczema improved; lichenification persists	Good for some months
24	M 9	32	Cortisone, 2,800 mg.	Skin normal except for a little folliculitis	Relapsed but not to original state
25	M 46	49+	Cortisone, 4,350 mg.	Rapidly improved	Remained remarkably well
26	F 13	21	Cortisone, 1,000 mg.	No benefit	

than the psoriatic type is good, more especially to A.C.T.H. therapy. In most patients the affection is cured or controlled, though individual requirements vary widely and maintenance therapy may need to be continued over long periods. With exfoliative dermatitis following psoriasis there was a ready tendency to relapse in those patients who showed an initial response, and one patient relapsed under treatment.

Eczema.—The response of eczematous reactions of the constitutional or exogenous type or from sensitization tended to be dramatic. In the latter group this response sometimes effected a cure, but relapse was usual following withdrawal of treatment in the other types of eczema. The response to treatment was less satisfactory in cases of seborrhoeic dermatitis and of nummular and varicose eczema. Hormonal therapy would appear to be useful in combating acute exacerbations of eczema and in facilitating the introduction and effectiveness of other lines of treatment. It may be that local therapy will prove valuable in this group.

Besnier's Prurigo.—The position here is the same as in the previous group so far as the acute eczematous aspects of the eruptions are concerned, but the effect of treatment upon chronic lichenification is usually less.

The results reported in all these conditions have to be considered in relation to the total dosage of the hormones administered; had larger doses or more prolonged treatment been used the response of the dermatoses might have been better, but the panel does not consider that the trial of larger doses is justified, in view of the risks involved.

A range of other dermatoses, including psoriasis, infantile eczema, urticaria, scleroderma, and pemphigus, has been investigated, and will form the subject of a subsequent report.

Summary and Conclusions

The results are presented of treatment of exfoliative dermatitis, eczema, and Besnier's prurigo by corticotrophin (A.C.T.H.) and cortisone.

In exfoliative dermatitis other than that following psoriasis the disease is controlled and often cured.

In eczema, except in the seborrhoeic type, there is a dramatic response, but usually a relapse following suspension of treatment except where an exogenic cause has been recognized and removed.

In Besnier's prurigo relief of symptoms is equally dramatic while the patient is under treatment, but there is less effect on the underlying lichenification.

A.C.T.H. and cortisone prevented or reduced the reaction to patch tests which had previously been positive.

Toxic reactions were encountered and are detailed. A few were of a serious character, but occurred in patients who were to be regarded as susceptible to such happenings.

The work of the panel was undertaken with A.C.T.H. and cortisone supplied through the Medical Research Council. Part of the cortisone came from a gift jointly to the Council and the Nuffield Foundation from Merck & Co. Inc., to whom the panel wishes to express its appreciation.

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THE INHIBITION OF ACUTE X-RAY DAMAGE BY CORTISONE

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An *x*-ray dose of 6,000 r delivered to an area of the skin of a guinea-pig will regularly produce inflammatory changes followed within sixty days by deep ulceration. The ulcers heal slowly and the irradiated tissues become shrunken and cicatrized. Evidence is presented to show that, if cortisone acetate is administered parenterally immediately before and after such irradiation, serious damage to the skin does not occur within a similar period of observation.

Attempts have been made in the past to modify radiation damage to normal tissue; much work has been done in searching for agents capable of protecting animals from a lethal total-body exposure to ionizing radiations. Cysteine (Patt *et al.*, 1949, 1950) and D.C.A. (Ellinger, 1947) have been shown to exert some protection. The important role of the adrenals has been established, for when these organs are shielded during the exposure, mortality to radiation is decreased (Edelmann, 1951a), whilst adrenalectomized animals are more vulnerable (Edelmann, 1951b). Reports of the action of cortisone and corticotrophin on modifying the effect of total-body irradiation are contradictory. Smith *et al.* (1950) reported that cortisone does not protect mice, and this was supported by the experiments of Ellinger (1952). Wentworth and Billows (1952) suggested that there is even a synergic action between *x* rays and cortisone, while Thiersch (1952) found that this hormone inhibited regeneration of bone marrow following irradiation. On the other hand, Taber (1951) found that if the dose of *x* rays was not excessive corticotrophin provided a measure of protection against total-body irradiation in mice. Mirand *et al.* (1952) found that both D.C.A. and cortisone gave complete protection to mice following 500 r total-body irradiation, a dose causing 100% mortality in the controls.

Marshall (1953) found that the administration of cortisone to mice irradiated on the skin (3,000 r) produced a prolongation of the latent period before the onset of the lesions and apparent modification of their severity. There was, however, a good deal of overlap between the two groups, and the animals were watched for only thirty days after irradiation. The latent period was prolonged from 15.31 to 21.41 days (average) and no ulcers were produced in the 24 cortisone-treated animals, while this did occur in 7 of the 26 control animals. The cortisone was administered for short periods only.

In man, cortisone and corticotrophin have been used to modify the effects of radiation pneumonitis (Cosgriff and Kligerman, 1951) and also for radiation sickness (Taber, 1951; Houghton and Walter, 1953). The latter

also reported a case in which dysphagia occurring during *x*-ray treatment for carcinoma of the bronchus was controlled by corticotrophin.

Method

Thirty-eight young adult albino male guinea-pigs of the Dunkin Hartley strain were kept for one month on a standard diet and in separate cages. Their weights ranged from 390 to 690 g., 32 of the animals being between 500 and 650 g. They were divided into two equal groups, each animal being paired with one of similar weight. The average weight of the cortisone group was 568 g., while that of the controls was 572 g.

The backs of the animals were clipped and a suitable circular field (2.6 cm. in diameter) was marked. Special care was taken to avoid scars and scratches, and all fields were below the level of the adrenals. Immediately before treatment the animals were anaesthetized with 5 mg. of pentobarbitone sodium intraperitoneally. Each animal received a total dose of 6,000 r to the marked area in two equal doses, the second of which was delivered forty-eight hours after the first : the cortisone group and the controls were irradiated alternately.

Technique of Irradiation.—The *x*-ray beam was generated at 50 kV (constant potential) and 2 mA, using a Philips contact therapy apparatus. The *x*-ray tube, which had an end window, was fitted with a special brass applicator. This terminated in a short thin-walled " perspex " tube, the distal end of which, closed with a thin disk of perspex, was 2.6 cm. in diameter and 3 cm. from the focus. An internal circular lead diaphragm ensured that this perspex face, when in contact with the skin, exactly defined the irradiated area. The skin dosage rate, measured with full-backscatter on the surface of " mix D " tissue-equivalent wax (Jones and Raine, 1949) was 275 r per minute, so that the exposure time for each 3,000 r skin dose was 10 minutes 54 seconds. The *x*-ray beam had a 2.5-mm. aluminium filter, the half-value layer being 1.7 mm. Al. The short F.S.D. (3 cm.) ensured a rapid decline of dose rate in the subcutaneous tissues. It is estimated that the dose fell, at a depth of 1 cm., to a little less than half that received by the skin.

Cortisone Administration.—Twenty-four hours before the first exposure 19 of the animals received 10 mg. of cortisone acetate by subcutaneous injection into the anterior abdominal wall. This was repeated each morning throughout the period of observation. The cortisone group showed no marked toxic effects, and all the animals were given occasional feeds of dried peas and apricots to guard against potassium deficiency. The animals were inspected daily, and the onset and development of skin changes were recorded. For convenience, two grades of ulceration were recognized : (1) A superficial erosion where the lesion involved partial skin loss only. (2) A deep ulcer where the whole thickness of the skin was destroyed and the ulcer bed was composed of subcutaneous tissues. Such ulcers showed marked surrounding induration and were adherent to deep structures, features not shown by the superficial lesions. Deep ulcers were further subdivided into large and small, those over 4 mm. in diameter being placed in the former category.

Results

Seventy-one days after the irradiation 19 control animals (100%) showed large deep ulcers. The 19 cortisone-treated animals (100%) showed no ulcers. One of the latter showed a superficial erosion which healed within ten days.

Erythema and Epilation.—Erythema began on the 12th day and was present in 4 cortisone animals and 10 controls. During the next week epilation started, and by the 32nd day all the control animals showed complete loss of hair on the irradiated areas, by which time 16 had also ulcerated. The skins of all 19 controls showed marked erythema during the period of epilation. In the case of the cortisone group the erythema was less pronounced and the hair tended to remain adherent, being shed only when the skin desquamated. By the 32nd day 16 still showed incomplete epilation and 2 showed practically no hair loss. Not until the 42nd day had all the irradiated areas epilated.

Ulceration.—All control animals developed deep ulcers, and the evolution of these is shown in the Chart. It can be seen that by the 59th day all had developed deep ulcers, and by the 71st day these were large. In contrast, only two animals of the cortisone group developed small deep ulcers, and these healed rapidly. Of the remaining 17 animals, 9 showed small superficial erosions which healed rapidly, while the remaining 8 showed no lesions at any time.

Contraction.—The size of the affected areas during the initial stages was identical in all animals. From the 32nd

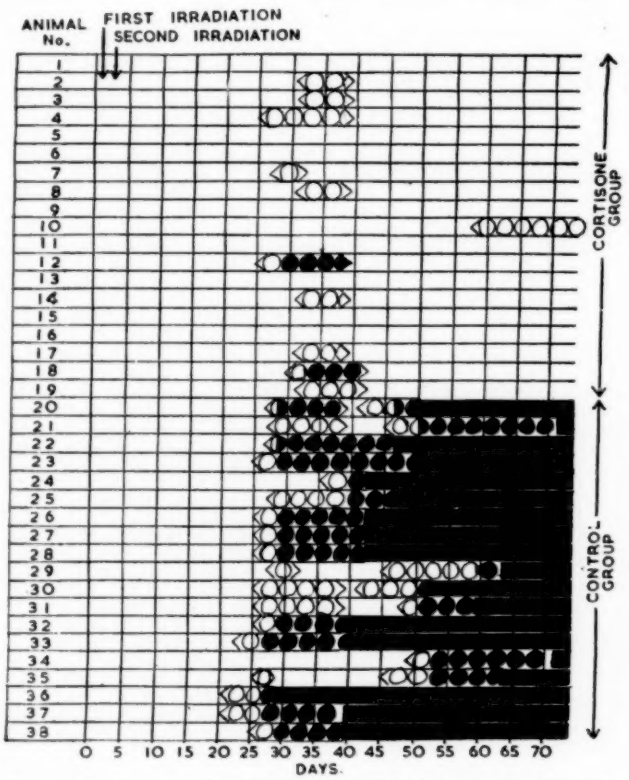

Chart showing the development of ulceration in control and cortisone-treated groups: 19 animals in each group. ○=Superficial erosion. ●=Small deep ulcer. ■=Large deep ulcer.

day onwards contraction was noticed in the controls, and by the 71st day was present in all this group, being severe in six. This contraction was associated with ulceration, and became marked as the deep ulcers cicatrized and healed. No such contraction occurred in any of the cortisone group. By the 81st day six controls had healed completely with cicatrization, but ulceration persisted in the other control animals. Measurement of the fields showed pronounced contraction in all this group. Where the affected areas were no longer circular, maximum and minimum diameters were measured and the mean was found. On the 81st day the average mean diameter of the irradiated areas was 2.83 cm. for the cortisone group and 1.84 cm. for the controls. The minimum and maximum actual dimensions measured among the control group were 0.8 and 2.4 cm. respectively, the corresponding range for the cortisone group being from 2.5 to 3 cm.

Discussion

The results indicate that the administration of cortisone profoundly alters the response of skin to *x*-radiation. The epilation is delayed and the early erythema is lessened. The most striking effect is the complete absence of deep persistent ulceration, and it is noteworthy that the two deep ulcers which did appear in the cortisone group did not exceed 4 mm. in diameter and healed rapidly with little scarring. During

previous pilot experiments it was found that the effect of a given dose of *x* rays was by no means uniform or predictable even in a uniform group of animals. Ulceration sometimes occurred early or occasionally was delayed; an ulcer which had healed sometimes broke down again. Late effects of irradiation on the skin are being studied in this and other groups of animals, both with and without cortisone. It seems probable that the changes which we have observed in previous experiments, occurring after as long as eighteen months, are part of a different phenomenon. A dose of 6,000 r was chosen as likely to produce early deep ulceration in 100% of control animals.

Cortisone is known to inhibit inflammatory reaction of tissues to irritants of all kinds, and the suppression of this initial inflammatory reaction to radiation may prevent subsequent ulceration. It has been suggested by Järvinen (1951), however, that the suppression of the initial inflammatory response to ultra-violet light by cortisone is in fact a spurious protection, resulting in the end in increased tissue damage. A drug which occasionally produces severe irritation and presumably inflammation of the gastric and intestinal mucosa (P.A.S.) can be administered for long periods under the suppressive action of corticotrophin without resulting in damage to the mucosa (Houghton, 1954). If the protective action of cortisone to *x*-ray damage is in fact due to inhibition of inflammation, the hormone should be effective if given only during the time that these changes are taking place. The work of Marshall has indicated that this may be true in mice, in which he found that cortisone was most effective if started shortly before the appearance of the lesions. It is possible, however, that cortisone produces a protective action during the actual exposure to radiation. The hormone is claimed to inhibit mitoses in epidermal cells (Green and Ghadially, 1951), but it seems unlikely that this effect could produce the degree of protection that has been demonstrated in this experiment. Whether the protective action of cortisone is a direct effect upon the cells or whether the effects are through some indirect action is not known. Cholesterol is known to undergo chemical change when exposed to ionizing radiation, and it is possible that this is also true of cortisone. Experiments are proceeding, using hydrocortisone ointment locally, to ascertain whether the protective action is a purely local one.

The use of systemic cortisone in radiotherapy is limited by our lack of knowledge of whether or not the protective action is extended to malignant tissues. If it can be shown that tumour cells are not protected, then the administration of cortisone will have a twofold advantage: the undesirable and sometimes severe general effects of radiation are reduced if not altogether abolished; and, secondly, it would be possible to administer larger *x*-ray doses or to increase the volume of tissue irradiated without fear of excessive damage to normal tissues. On the other hand, the dangers of uncontrolled infection during cortisone therapy cannot be overlooked.

Quite apart from any clinical applications, the demonstration of the protective action of cortisone is of importance in that it shows one method of blocking *x*-ray damage. Since the fundamental mechanism of the destructive action of *x* rays is not clearly understood, a study of the protective action of cortisone may well lead to a better understanding of the biological effects of radiation.

It is believed that tissue damage resulting from exposure to nuclear-fission products does not differ essentially from that produced by *x*-radiation. It is possible, therefore, that the protective action of cortisone might be extended to this field.

Summary

A dose of 6,000 r was delivered to a circular area of skin in 38 guinea-pigs. The 19 control animals showed severe persistent ulceration and cicatrization, whilst the 19 animals receiving parenteral cortisone showed complete absence of such ulceration. Under cortisone the early erythema was reduced and the epilation delayed; the irradiated areas showed no shrinkage, although this was marked in the control animals. The possible mechanism of the protective action of cortisone is discussed.

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HODGKIN'S DISEASE

BY

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AND

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Hodgkin's disease, or lymphadenoma, is a fairly well defined clinical and pathological entity when it presents in its classical form. It is, however, only one of a group of less well defined diseases of the lympho-reticular system, although a very distinctive one. Many borderline cases occur in which a crisp diagnosis of lymphadenoma cannot be made with certainty. According to the Registrar-General the annual death rate in England and Wales from Hodgkin's disease is 17 per million population. This is about one-hundredth of the death rate from all types of cancer taken together, or approximately equal to that from cancer of the tongue. Looked at from the point of view of general practice, Hodgkin's disease is therefore a relatively rare disease but common enough to need being kept in mind, in particular when a patient presents with otherwise unexplained lymph-node enlargement. Males are more often affected than females in the ratio of about 2 to 1. The disease predominantly affects persons of middle adult life at the time of their greatest working capacity, as shown in Fig. 1. This graph also demonstrates that childhood and old age are not exempt; we have, however, not seen a case in a subject younger than 2 years.

Pathological Features

The aetiology of Hodgkin's disease is still unknown. It is thought by many to be a generalizing neoplasm. Histologically the appearances sometimes resemble the sarcomas

of reticular tissue, and occasionally the disease terminates as a reticulosarcoma. Others have doubted the neoplastic nature because of the multiplicity of cell types found, and have sought an infective agent. The tubercle bacillus, *Brucella abortus*, and viruses have been considered, but so far there is no accepted evidence of an infective origin.

The enlarged lymph nodes show a loss of the normal architecture; there is a proliferation of reticulum cells in the medullary tissue, and in most cases the presence of the characteristic multinucleate giant cells. Lymphoid cells and fibrous strands are present to a variable degree, and in the chronic case the fibrosis may become very extensive. Other cells such as granulocytes, particularly eosinophils, and plasma cells are present. These last two types are regarded by Willis as a reaction to the presence of tumour cells, not as part of them. Hodgkin's masses in tissues other than lymph nodes show essentially the same pattern. Such masses may arise by direct extension from lymph nodes, but in the lung and bone marrow the very numerous foci sometimes found suggest a blood-stream dissemination.

The pathological features of the disease often merge into

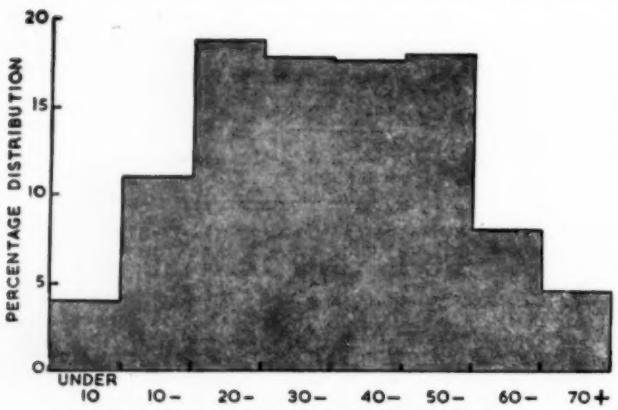

FIG. 1.—Age distribution of 404 treated cases.

the spectrum of other reticuloses just as do the clinical features. Thus atypical cases are seen which resemble reticulum-cell sarcoma or eosinophil granuloma. Some cases are acute with lesions mainly in the viscera; others are relatively benign—the so-called Hodgkin's granuloma.

Clinical Picture

The commonest presenting symptom in the early case is a painless enlargement of the nodes of the neck, usually more marked on one side; the patient may have no other symptoms and may be in excellent general health. Examination will often reveal slight enlargement of lymph nodes elsewhere and the spleen is sometimes palpable. At this stage fever is rarely present. Unlike tuberculosis, the nodes in Hodgkin's disease remain discrete and movable for a long time; they are painless and neither inflamed nor fluctuating.

Although the neck nodes are the commonest group to be found enlarged in the early case, other groups of superficial nodes—for example, in the axilla or groin—may show first. Enlarged nodes in the thorax or the abdomen may be found radiographically or on examination, but only occasionally are the earliest symptoms due to such enlargement, when dyspnoea or gastro-intestinal symptoms become the key complaints. A curious but common manifestation is intolerable itching associated with invasion of retroperitoneal nodes.

As the disease advances the involvement of lymph nodes becomes more generalized or other organs become involved. Splenic enlargement to a variable degree is usual; liver enlargement is less common. The central nervous system, particularly the spinal cord, may be invaded, with resulting paralyses. Skin and subcutaneous tissue, lung, bone, or bone marrow may be affected. Lung involvement is usually associated with pleural effusion, and bone foci produce pain even before visible destruction can be seen radiographically.

In the terminal phase the essential systemic features or effects become dominant, with obvious general ill-health. Loss of weight and energy occurs. The patient is pale and feverish and perspires freely. The raised temperature may be low-grade and continuous or may be intermittent. A polymorphonuclear leucocytosis is usual, the red-cell count and the haemoglobin fall, and the erythrocyte sedimentation rate is raised. The disease terminates with progressive anaemia which is only temporarily relieved by blood transfusions.

It is, of course, very easy to describe the "average case" in this way, but many individuals fail to conform to this average pattern. In practice, deviation from the picture outlined occurs in two main ways. The course after the typical onset in the cervical nodes may show only one or two of the features described—apart from the terminal one. For example, involvement of one group of nodes after another, but none of great size, may become the whole story and yet lead on to a slow systemic deterioration with anaemia as the only really definite feature. Alternatively, the case may present from the beginning with only one of the less common features—for example, in the spinal cord or in bone—and without enlargement of superficial nodes. Not only so, but many cases which ultimately can only be labelled Hodgkin's disease overlap into the other forms of reticulosis and show in addition to their Hodgkin's features some features of the leukaemias, of the lympho-reticulosarcoma group of tumours, or of other reticuloses.

The clinical picture is therefore variable, but the common picture is that of multiple and generalized lymph-node enlargement leading on to haemopoietic aplasia.

Diagnosis

The diagnosis is practically always made from biopsy of a lymph node or other focus. No other tests are exclusive to this disease. A positive Mantoux test is of no value in differential diagnosis as it is positive in many cases of Hodgkin's disease. The E.S.R. tends to be raised as it is in other conditions. The blood count is not characteristic. A recent article describes pain in bone after a glass of sherry as pathognomonic of bone invasion, but this delightful suggestion awaits confirmation. Owing to the number of atypical cases accurate assessment of the stage of the disease is not easy. It depends but little on the site or extent of actual involvement. However, the presence of fever and a falling haemoglobin level are reliable indications of advancing disease.

Treatment

Hodgkin's disease is, in the end, always fatal. Treatment policy is therefore primarily directed towards particular manifestations of the disease or to the relief of symptoms rather than to the unknown root cause. Its main aim is to maintain the patient in the best possible condition for the longest possible time. This aim is achieved by employing the whole gamut of treatment methods now available, but using each appropriately and conservatively. Each of what will become a series of separate treatments has to be carried out in hospital or in the out-patient department; but the intervals between treatments should be as long as they can be made, and essential sojourns in hospital should be as short as is compatible with effective treatment.

Three methods of treatment are available—surgery, radiotherapy, and chemotherapy.

Surgery

Surgery is usually required in some form even if only for biopsy. Where masses are single or localized to one lymphatic region surgical excision provides one method of removing a mass. It has been claimed that, for masses limited to the neck, surgical dissection gives more enduring local results than radiotherapy, but this is doubtful.

Radiotherapy

Radiotherapy has for many years been the mainstay of treatment, and remains so, as the characteristic foci of lymphadenoma are radiosensitive. Once the diagnosis is made, treatment is directed towards securing resolution of all affected individual lymph-node groups. Before initiating this scheme in cases presenting with only a single focus it is important that any probability or possibility of a curable lymphosarcoma or reticulosarcoma be excluded. Detail of radiotherapy technique and dosage is not relevant to this article, as it is a matter for the radiotherapist. Only a brief outline, therefore, is given of the broad principles underlying any approach. Treatment methods are essentially simple and only moderate radiation dosage is used. The extent of treatment varies with the extent of node involvement. It ranges from a single treatment of nodes in one side of the neck to a whole sequence of treatments to all the external lymph-node areas, neck, groins, axillae, to the mediastinum, and to the retroperitoneal chain of nodes which require a course of treatment extending to several weeks. Treated masses almost invariably resolve and any pressure symptoms are relieved.

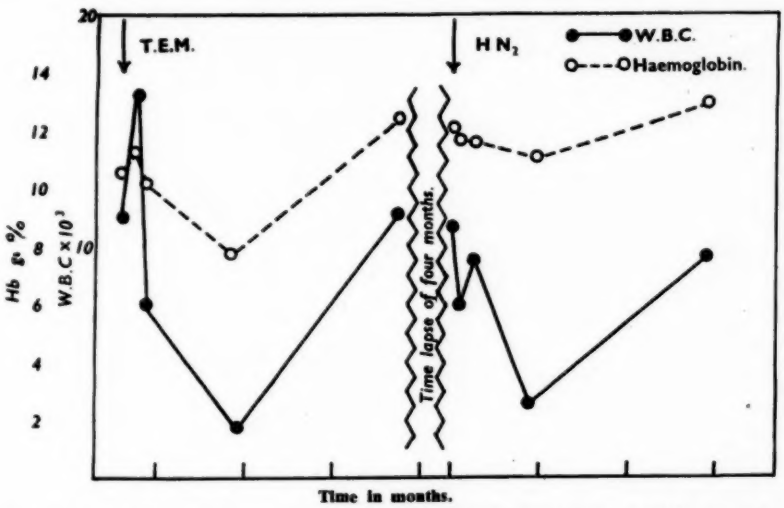

FIG. 2.—Showing typical response of white blood cells and haemoglobin to triethylene melamine and later, after a remission, to nitrogen mustard.

Skin itching is nearly always relieved after radiotherapy of the retroperitoneal nodes. In all but the most advanced cases some improvement of the systemic symptoms can be expected. Reaction to the treatment is seldom distressing. Where large volumes have to be irradiated there may be some radiation sickness. Skin reaction is rarely carried further than a brisk erythema requiring no special care other than keeping dry. Mucosal reactions in the mouth, pharynx, or intestine may occasion temporary discomfort, but are transient and require little attention.

After each course of treatment as long an interval as possible is allowed before repeating treatment either to new foci or, though this is rare after adequate treatment, to recurrent masses. In the end, however, radiation becomes increasingly ineffective in controlling the disease, as general deterioration sets in.

Chemotherapy

Chemotherapy has, by the use of systemic drugs discovered in the last decade, established an important place for itself in relation to the treatment of Hodgkin's disease. The first drug found effective was nitrogen mustard (methyl-*bis*-(beta-chloroethyl)-amine hydrochloride) (NH_2), and it is still commonly used.

Nitrogen mustard in one or other of its forms will effect a satisfactory remission in many cases at a total dose of 0.4 mg. per kg., given as two intravenous injections each of 0.2 mg. per kg. at twenty-four-hour intervals. Great care must be taken that none of the injection escapes into the subcutaneous tissues, where it is extremely irritating. Thrombosis of the injected vein may occur; this can be prevented by making the injection through the rubber tubing of a saline drip. The immediate side-effects of nitrogen mustard are distressing but are of short duration. Vomiting generally occurs within an hour or two of the injection and diarrhoea may follow. A later side-effect which occurs at about two weeks is leucopenia, which should be limited to a reduction of neutrophils. A reduction in platelets or of haemoglobin is not usual at the doses suggested, but if it occurs it should be transient. The benefits of nitrogen mustard become apparent within a day or two. An elevated temperature which has not responded to antibiotics becomes normal, appetite is improved, and the patient gains a great sense of well-being. Enlarged nodes diminish in size and itching is relieved. The duration of improvement is variable; two to three months can be regarded as a good response.

Triethylene melamine (T.E.M.) has been described more recently, and is likely to supplant nitrogen mustard because of the milder side-effects. This can be given orally as enteric-coated tablets with less gastro-intestinal disturbance than occurs after nitrogen mustard. The improvement is less rapid and hence less dramatic, but is equally well maintained. The total dose of T.E.M. is 0.25 mg. per kg., which is given in fractions over two or three days. Thus for a patient weighing 65 kg. a dose of 5 mg. a day may be given daily for three days. The tendency to leucopenia is just as great, however, as with nitrogen mustards, and this dose should rarely be exceeded.

Treatment with either NH_2 or T.E.M. is given as courses spread well apart. With either T.E.M. or the nitrogen mustards repeated courses of treatment may be given so long as the bone marrow is not aplastic. It is dangerous to repeat the dose in the presence of a leucopenia or if the bone marrow shows a diminishing cellularity, and it is unwise to repeat a course of treatment at an interval shorter than about six weeks to two months. Thus the treatment requires careful and repeated blood counts as a means of control. The response to the earlier courses is almost always good. Later courses of treatment produce a less good and a less lasting effect.

If no response is obtained to one of these forms of chemotherapy, it is unlikely that the other will be beneficial. Fig. 2 illustrates the haemopoietic response to chemotherapy.

Recently, cortisone or A.C.T.H. has been suggested as beneficial in the otherwise terminal case; and there are indications that this approach may have a temporary value.

Relationship Between Radiotherapy and Chemotherapy

This relationship merits analysis at this point. Chemotherapy can unquestionably yield resolution of masses even in the early case and is therefore in one sense entirely applicable. Such resolution is, however, shorter than that achieved by localized *x*-ray treatment, while the employment of chemotherapy at this early stage uses up tolerance, particularly haemopoietic tolerance, which will be needed later. We are therefore definitely of the opinion that radiotherapy should be used first, except for the case which is already very advanced when first seen. It should be maintained as long as possible as a series of courses. Chemotherapy is kept in reserve for application in the later phases, when the disease is becoming less responsive to radiotherapy, is generalizing, or presents in such a systemic form as to make *x*-ray therapy impracticable because too extensive. In some cases it is found beneficial to give one of these chemo-

therapeutic agents for a case which is generalized and at the same time to use irradiation locally for an obvious mass. It has not been shown, however, that the simultaneous routine combination of chemotherapy with radiotherapy in the early case improved the average survival time of patients compared with that of patients treated with radiotherapy alone.

Pregnancy occurring during Hodgkin's disease is a complication which may prejudice treatment. This possibility should be excluded before embarking on treatment, as it is inadmissible to irradiate the foetus or to subject it to chemotherapy. Depending on the condition of the patient, it may be advisable to terminate the pregnancy and thereafter institute treatment. If termination is not possible or desired, treatment should be limited to radiotherapy which excludes the abdomen and groins until after the birth of the child. Further radiotherapy or chemotherapy may then be used.

Home Care

Both these treatments, chemotherapy and radiotherapy, are better carried out by those with specialized experience. In spite of this the general practitioner undoubtedly carries the heavier burden. On him lies the responsibility of keeping the patient comfortable for the intervals between courses of treatment, and in keeping clearly in his mind that his purpose should be to try to prolong each interval to the maximum and not have the patient go running back to hospital for each new minor symptom or new lump. Expectant treatment of symptoms becomes, therefore, the keynote ; this may include the aspiration of pleural fluid. Great attention should be paid to maintaining the general health of the patient. Fresh air and rest are important, and some form of iron should be prescribed. While skin irritation is alleviated either by *x*-radiation of abdominal nodes or by chemotherapeutic means, the relief in severe cases is sometimes disappointingly brief. In these circumstances local applications of calamine with phenol may be of value ; the antihistamine preparations are not. In the terminal case with a rapidly falling haemoglobin a temporary improvement may be obtained by a transfusion of whole blood, or by the use of A.C.T.H. or cortisone.

Prognosis

Academically it is true that Hodgkin's disease is incurable, but the statement must be read with due regard to the prolongation of life now possible, using modern treatment to the full. The Table gives the five-year survival of a number of cases treated at this hospital. As will be seen, it compares reasonably with the five-year survival of some of the more treatable cancers. A useful fraction of cases can be kept going for anything from five to ten years, most of them in a tolerable state of health for the greater part of the time. Clinically, both the extremes of short survival and long survival are found. Acute cases are usually atypical in having the distribution of lesions mainly in the viscera. There is almost from the beginning a high temperature and severe prostration. In such cases, which occur generally in young people, the duration may be only a few months, and response to chemotherapy is slight. The really chronic type of case, on the other hand, may be kept in reasonable health for periods of up to and exceeding ten years, during most of which time the patient remains able to attend to his business.

Hodgkin's Disease: Five-year Survival Rate (Crude) of 256 Treated Cases (1934–47)

Clinical Findings	Male	Female	Total
Disease initially localized	44%	64%	51%
" " generalized	12%	21%	15%
All cases together	21%	34%	25%

OBSERVATIONS ON THE AETIOLOGY OF IDIOPATHIC STEATORRHOEA

JEJUNAL AND LYMPH-NODE BIOPSIES

BY

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I have previously reported the finding of emotional factors influencing the onset and relapses of idiopathic steatorrhoea, and of personality traits much like those found in ulcerative colitis and Crohn's disease (Paulley, 1949a, 1949b, 1950, 1952a, 1952b, 1952c). This was unexpected, and led me to wonder how these factors might cause such a disturbance of small-bowel function. With colitis and ileitis in mind, the most likely possibility was a form of jejunitis. That there might be mucosal oedema seemed probable from a study of small-bowel meals, which usually show broadening of the valvulae conniventes in idiopathic steatorrhoea. The interesting observation by French (1949, 1950–1) and Frazer *et al.* (1949) that the cause of the phenomenon of "clumping" in small-bowel barium examinations was flocculation of the barium by excess mucus seemed to lend support to the idea of a low-grade chronic inflammation or irritation of the small gut. The chief difficulty about this theory was that since Thaysen's (1932) monograph it had been, and still is, accepted that the jejunal mucosa is normal in sprue and idiopathic steatorrhoea, and that any abnormality found should be attributed to post-mortem change. As a result, for twenty years those interested in this field have ignored the possibility of a mechanical hindrance to absorption and have sought, without success, for causes ranging from vitamin deficiency to adrenal dysfunction. However, on studying Thaysen's evidence carefully I was unconvinced by it (Paulley, 1949a), based as it was on necropsy studies of two cases of his own—one sprue and one non-tropical sprue—and a rather one-sided view of the literature.

The only certain way of testing the jejunitis hypothesis was to obtain biopsy material, and in the past five years I have been present at five laparotomies on patients with steatorrhoea. One was found to have Whipple's disease (Paulley, 1952a) and is still alive and well ; the other four are described in this paper. The series is not large, but the indications for laparotomy in steatorrhoea are limited, though the finding of a case of Whipple's disease and an *x*-ray negative case of Crohn's disease in so small a series may suggest that it should be done more often.

Review of the Literature

Thaysen's monograph also dealt extensively with sprue, and it will also be necessary to refer to some of the old ideas about that disease here. Thaysen's observations led him to the conclusion that there were no characteristic morbid histological changes in the intestinal wall in either condition. He dismissed much strong evidence to the contrary advanced by previous workers (Faber, 1904 ; Beneke, 1910 ; Justi, 1913 ; Manson-Bahr, 1915, 1924) of inflammation and ulceration of the intestinal mucosa, because they had not been found constantly or were autolytic. Elsewhere, however, he was less downright, and said : "It must be correct to interpret these intestinal changes as being of secondary nature, either produced by relatively low virulent micro-organisms that have nothing to do with the aetiology of sprue, or resulting from irritation of the mucous membrane owing to abnormal acidity of the intestinal content, or as a result of both agents."

Thaysen quotes only four cases of idiopathic steatorrhoea in which microscopy of the intestines had been carried out —those of Blumgart (1923), Holst (1927), Rosendahl (1927), and one of his own. Inflammatory changes in the intestine were noted in two of these cases, and, in one case, in the mesenteric glands. In one case the inflammation was dismissed by Thaysen as due to radiation, but this may well not have been the cause. Blumgart's case has since been included in the group of cases of Whipple's disease, but the evidence is inadequate, and it is more probable that this was a case of idiopathic steatorrhoea.

Schein (1947) and Adlersberg and Schein (1947) have noted abnormal histology in the mucosa and lymph nodes of patients dying of idiopathic steatorrhoea. Some of these changes agree closely with the findings of older workers and those to be recorded in this paper. However, studies of their photomicrographs suggest that they too were hampered by the problem of post-mortem change. In view of the similar histological findings in sprue and idiopathic steatorrhoea by the older observers, the following descriptions of sprue are quoted for comparison with cases in this paper. Manson-Bahr (1924) reported "a general atrophy of the villi due to fibrosis, and a diffuse round-cell infiltration of the whole of the mucosa. There is also a general fibrosis of the submucosa and dilatation of the capillary vessels." Justi (1913) stated that the villi were broad, somewhat short, and considerably swollen, and in their free half the stroma contained an abnormally large number of cells, either lymphocytes or plasma cells, or due to the villi being filled with a very cellular fibrillary connective tissue that gave them a "stiff" appearance. Beneke (1910), seeing the same specimen, also noted the shallow crypts and atrophy of the villi, found no "marked" phenomena of inflammation, but observed very numerous goblet cells.

It is hard to deny the likeness of these old observations on the tropical disease to the histology of the cases described below, and it is tempting to suggest that research workers in sprue might find it worth while reopening the question, which has remained closed since Fairley's negative mucosal studies in 1936. The epidemiology of sprue sets it apart as a quite separate disease from idiopathic steatorrhoea; nevertheless I think a low-grade jejunitis may also be present but for different reasons than in idiopathic steatorrhoea.

Case 1

A man aged 56 was admitted to the Middlesex Hospital in May, 1948. In March he had had diarrhoea, and six weeks before admission he began passing frequent, pale, foul stools and also suffered central abdominal colicky pain. He lost 28 lb. (12.7 kg.) in two months and was weak —weight 96 lb. (43.5 kg.). He was a small man and stated that he had suffered from much ill-health in childhood, but did not know the cause. (The possibility that he was a coeliac child cannot be excluded.) In 1916 he had "shell shock," in 1918 pneumonia, and subsequently frequent winter coughs.

On examination patches of brown pigmentation were found over his trunk. His parotid glands and submaxillary glands were palpable. Coarse rales were present at both lung bases posteriorly. The abdomen was distended and tympanitic. He was very fully investigated, and had a slight iron-deficiency anaemia, faecal fats of 41.0%, splitting 98% on a daily intake not exceeding 70 g., a flat glucose-tolerance curve, and a small-bowel meal which showed very coarse irregular mucosal folds in the lower duodenum and jejunum. Malignancy was suspected and a laparotomy was carried out. The jejunum was dilated and thickened, and the serosa was inflamed. Enlarged lymph nodes were present in the jejunal mesentery, and one was taken for section. The rest of the small gut was normal, as was the pancreas. He made a good recovery from the operation. Histological examination of the lymph node showed chronic inflammatory changes with much destruction by fibrosis. No fat was seen in the gland substance.

Case 2

A man aged 39. In 1944, when in the Army in France, he had dysentery. Other members of his unit were also affected. Subsequently he had frequent relapses of diarrhoea. His weight, which was 182 lb. (82.5 kg.) in 1944, was 119 lb. (54 kg.) in 1948. His stools were large, frothy, foul, and pale. At times he noticed blood in them.

On examination he was pigmented and hypotensive (100/70). A barium-meal examination on January 10, 1951, showed numerous fluid levels in the small intestine; irregularity of the mucosal pattern was evident. The appearances suggested a small-intestinal obstruction. Faecal fats: 68% of dried weight, 77% split on a daily intake not exceeding 70 g. Fat balance over four days revealed absorption of less than 25%—so low, in fact, that its authenticity was doubted. Blood counts in 1951 tended towards a macrocytosis. Occult blood tests were strongly positive.

Laparotomy was carried out on February 15, the possible diagnosis being multiple tuberculous strictures, Crohn's disease, and gastro-colic fistula. The whole of the peritoneal surface of the gut was excessively "wet" and glistening. The mesentery of the small gut appeared to be oedematous, and many enlarged lymph nodes were present in it. No evidence of obstruction was found. The bowel itself appeared thin-walled and transparent. Biopsy specimens of gland from various sites and a wedge of jejunum were taken. The patient made an excellent recovery, improving considerably because of, or in spite of, his operation, which he thought was a great success. His subsequent course was up and down, and despite the usual therapy he died a year later in a Ministry of Pensions hospital. Necropsy was performed without significant findings. Some sections of his gut were kindly made available, but they were valueless on account of autolysis.

Histology.—The biopsy specimens showed broadening of the jejunal villi, which were packed with plasma cells and eosinophils. The inflammatory changes extended into the submucosa, where dilated lymph spaces were seen, possibly the site of oedema noted macroscopically. The sinuses of the jejunal glands were full of histiocytes, some of which appeared to be foamy. The pathologist's report was "an extreme form of sinus catarrh." It is worthy of note that ileal, ileo-caecal, and omental glands were regarded as being within normal limits.

Case 3

The patient, a woman aged 42, had been investigated at St. Bartholomew's Hospital, London, in July, 1951, following a period of evening pyrexia, lassitude, diarrhoea, and amenorrhoea for twelve months. Her faeces then contained 67% fat, of which 54% was split. The secretin test was equivocal, giving rather low volumes of juice. (Personal experience has shown this test to be unreliable—a view supported by Elman and Hollender, 1952.) She was treated with iron, folic acid, high-protein low-fat diet, and pancreatin, and was discharged on this regimen. The conclusion was that she had grossly abnormal small-bowel function, and that it was impossible to say whether this was the primary lesion or whether it was secondary to subacute pancreatitis. She was admitted to Ipswich Borough General Hospital on March 4, 1952, having become steadily worse following temporary improvement after being in St. Bartholomew's. She said her stomach first troubled her during the war, when she did not want to see anybody or to go out. Large, loose, offensive stools had been present on and off for two years.

On physical examination she was pigmented, wasted, and hypotensive (90/70). Her tongue was red and raw on admission. Faecal fat on a diet of less than 70 g. a day was 60% of dried faeces and splitting 80%. She was not anaemic. Plasma proteins: albumin, 1.6 g.%; globulin, 3.4 g.%; potassium, 18 mg. per 100 ml. E.C.G. No evidence of potassium deficiency. Occult blood tests were positive. The small-bowel meal showed some dilatation of jejunum and coarsening of the jejunal folds. Laparotomy was carried

out on April 16, when her condition had slightly improved. There was a little free fluid in the abdomen. The serosa of the upper jejunum was injected, the lower jejunum and upper ileum were oedematous, and the serosal vessels were prominent. The lower ileum had a crenated appearance externally, and the colon was normal. The mesentery of the jejunum in particular was thickened and contained numerous enlarged lymph nodes. A Meckel's diverticulum was found and removed. No evidence of small-bowel destruction was seen, and the pancreas was palpated and seemed to be normal. Biopsy specimens of lymph nodes and jejunum were taken.

Histology.—Many of the villi were broad-ended and full of chronic inflammatory cells, mainly plasma cells and eosinophils. In the submucosa there were collections of inflammatory cells in the perivascular lymphatics. The jejunal lymph nodes showed invasion of the sinuses with chronic inflammatory cells and there were hyperplastic lymph follicles.

The patient was treated with the B vitamins, a high-protein diet, and supportive psychotherapy with definite but undramatic effect. Her stools became less troublesome and she gained some weight. A.C.T.H. was not available to us when she was in hospital.

Case 4

A woman aged 58 was first seen in 1950, when she presented with gross iron-deficiency anaemia which had resisted oral iron treatment for several years. She was wasted and extremely small, 4 ft. 10 in. (147 cm.), being easily the smallest of her family. Marked glossitis was present, and she gave a history of sore tongue on and off since her teens. On interrogation she admitted bouts of pale foul diarrhoea which had become more frequent and more severe for five years. She had suffered from diarrhoea and sickness attacks since the age of 2, and her brothers and sisters pulled her leg about her "big tummy."

FIG. 1.—Jejunal mucosa. Normal control. (×50.)

FIG. 2.—Jejunal mucosa. Case 2, steatorrhoea. (×50.)

On intravenous iron and psychotherapy she had a remission, and later received folic acid, riboflavine, and liver injections. Early in 1952 her condition deteriorated; "tween 80" was tried without success. She lost much weight. Steatorrhoea was severe and continuous. In August, 1952, she was readmitted. Small-bowel meals showed to a greater degree the dilated loops seen previously. In addition fluid levels were now present. Occult blood tests were positive, and thoughts turned to tuberculosis, Crohn's disease, and carcinoma superimposed on her steatorrhoea. Her general condition was so bad that it was decided to try A.C.T.H. before surgery. Efforts had been made to rouse her from her apathy and withdrawn state of mind without success.

FIG. 3.—Jejunal mucosa. Normal control. (×140.)

Within six hours of beginning A.C.T.H. she felt better; within twenty-four hours she was getting out of bed and asking for more food. The distension and eructation began to improve. Her mental outlook was utterly changed. Cheerful optimism and energy replaced apathetic misery. She gained 14 lb. (6.4 kg.) in five weeks, though she had a minor relapse in the middle when dosage was tailed too drastically. She wanted to go home, but repeated occult blood tests were still strongly positive and she had developed a macrocytic anaemia for the first time. The Hb was 70%; R.B.C., 2,480,000; M.C.V., 125 cubic microns. Surgery was advised, and at operation a terminal ileitis with stenosis was present. This was resected. The gut above was somewhat distended. The jejunum was studded with diverticuli, and small glands were present in the jejunal mesentery. The jejunal serosa was not inflamed macroscopically. She made an uneventful recovery. Her anaemia was treated with vitamin B_{12}; she then became iron-deficient and responded to iron given intravenously.

Histology.—The jejunal mucosa was moderately reduced in thickness. In general the villi were widely spaced and some of their terminal portions were enlarged. There was infiltration of the mucosa by plasma cells, sometimes extending into muscularis mucosa, but no lymphatic dilatation. Both muscle coats showed hypertrophy, and there was a very pronounced paranuclear infiltration by golden-brown fine pigment, apparently lipofuscin, probably of no significance though of unusual extent.

Discussion

The rare opportunity for obtaining jejunal and mesenteric gland biopsy specimens in idiopathic steatorrhoea has presented itself four times in the past five years. In three

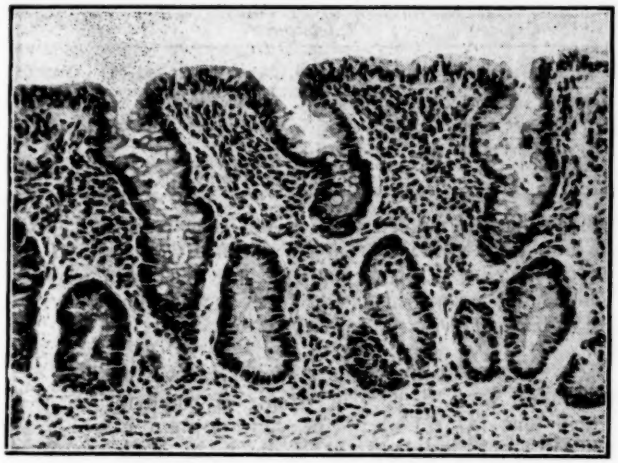

FIG. 4.—Jejunal mucosa. Case 2, steatorrhoea. (×140.)

FIG. 5.—Jejunal mucosa. Case 3, steatorrhoea. (×140.)

cases inflammatory changes have been found in the upper small bowel and related lymph nodes at operation. In a fourth case of steatorrhoea dating from coeliac disease in childhood similar changes were found, though of a lesser degree, and in this case may have been due to stasis from a terminal ileitis, believed to be of relatively recent origin. A factor to be taken into account here was that this patient had completed a five-weeks course of A.C.T.H. by the time of operation, with a weight gain of 14 lb. (6.4 kg.) and great improvement in the stools and in well-being. The mucosal histology of these cases was striking in itself, but appeared doubly so when compared with normal jejunal mucosa taken at the time of operation for partial gastrectomy. It will be seen (Figs. 1–5) that the steatorrhoea villi were approximately double the width of the controls. Other obvious differences are in the shape and cellularity of the villi, the presence of large numbers of inflammatory cells in the mucosa and extending into the submucosa, fibrosis, and dilatation of the lymphatics. In Case 2 the inflammatory process had advanced to a stage of atrophy and fibrosis, and the villi were short and thick. There was also some histological evidence of the oedema noted at laparotomy, and the delicate conifer-like appearance of the normal jejunal mucosa as seen in the control material was missing. Goblet cells appeared more prominent in the steatorrhoea cases than in the controls.

So seldom have pathologists been confronted with biopsies of human jejunum that it is doubtful if the normal appearances are much known. The shape, stroma, and cellularity of the normal as opposed to the abnormal villus is likely to be difficult to interpret and to call for experience at present lacking. It is therefore not hard to understand why these mucosal changes have been found only inconsistently in the past with occasional material, and that usually severely damaged by autolysis. The photomicrographs of much of Thaysen's material and of Schein's show post-mortem changes of the mucosa despite the fact that every effort was made to prevent it, and I suspect that in some cases in which the agonal period is prolonged, autolysis of intestinal mucosa may begin even before death. If this is so, early formalin treatment of the gut will be useless.

To summarize, it seems likely that the inconsistency of the mucosal findings in the past may have been due to (1) ignorance of the normal appearances, (2) differences in stage of disease, (3) post-mortem or even ante-mortem changes making reliable interpretation impossible, or (4) no biopsy material available.

Summary

Psychosomatic findings in idiopathic steatorrhoea very similar to those in colitis and Crohn's disease led to the hypothesis of jejunal inflammation as an intermediate cause of idiopathic steatorrhoea.

Thaysen's negative observations on the morbid histology of the jejunal mucosa tended to shut out older views to the contrary. Some doubt is cast on Thaysen's deductions.

The literature dealing with the intestinal pathology of idiopathic steatorrhoea is surveyed. Some references to sprue are made inevitably.

Three cases of idiopathic steatorrhoea and a doubtful fourth case are described in which biopsy material was taken at laparotomy. All showed chronic inflammation of the jejunum and lymph nodes. Photomicrographs of the jejunum of two of these are presented with control sections taken at the time of the operation for partial gastrectomy. The differences are apparent.

An attempt has been made to explain the previous inconstant histological findings in this field. The difficulty of obtaining satisfactory post-mortem material and the possibility of autolytic changes before death would suggest that biopsy material is necessary to further research in this subject.

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STAPHYLOCOCCAL INFECTIONS IN GENERAL PRACTICE

BY

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Staphylococcus aureus is responsible for a wide group of superficial lesions such as boils, impetigo, sycosis barbae, wound infections, conjunctivitis, and styes. In this study, from an averaged-sized practice in North London, only cases of boils and styes have been selected for a clinical and bacteriological investigation during the years 1950–3. Although these infections cause a vast amount of minor ill-health in the home and factory, their main features have been almost exclusively studied in hospitals.

The family doctor is well placed to consider certain simple problems of staphylococcal infection. For example, what are the common sites on the body for boils? What age groups are affected? Do these infections tend to occur in families? What is the nature of recurrent infection? What is the incidence of penicillin-resistant infections in general practice?

In the study of these questions the phage method of typing proved of the greatest value. As Williams and Rippon (1952) have pointed out, it distinguishes patterns of phage susceptibility rather than fixed types of staphylococci, but "if the use of this method is confined to answering the sort of questions that it is competent to answer—namely, the identity of sets of cultures—there can be little doubt of its value."

Method of Investigation

When a patient came to the surgery with a boil or stye a brief history was taken in which was recorded the site, previous attacks, and whether other members of the family were affected. Dry swabs were then taken from the lesion and also from one nostril, and these were sent by post to the Central Public Health Laboratory. There they were examined for staphylococci, and sensitivity tests were performed by the routine dried disk method. The staphylococcal cultures were then phage-typed at the Staphylococcal Reference Laboratory. In order to obtain a growth of staphylococci from boils or styes which had not burst, it was necessary to make a small incision to obtain frank pus. Swabs taken from the intact overlying skin of a boil did not regularly yield *Staph. aureus*, and, even when a growth was obtained, one could not be certain that the organisms were not those normally found on the skin in some 20% of healthy individuals (Miles *et al.*, 1944).

Clinical Features

Social Conditions.—The 81 patients in this series all lived on the London County Council Woodberry Down Estate. The families live in large blocks of flats within a "neighbourhood unit" with its modern day-nursery, primary school, and small welfare home for the aged. It was noteworthy that under these ideal housing conditions the severe forms of staphylococcal infection—large carbuncles, osteomyelitis, and staphylococcal pyaemia—were not encountered.

Age Incidence.—Table I shows the age distribution of the 81 patients with boils and styes compared with 500 patients selected alphabetically from the practice. During infancy and early childhood these infections were relatively less common. The incidence rose during 5–19 years to 44% of cases and remained high in the 20–44 age group, but in later life the incidence again declined.

TABLE I.—*Age Distribution of 81 Patients with Staphylococcal Infections*

	Under 5	5–19	20–44	45–64	Over 65
Random sample from practice..	15%	28·6%	37·8%	10·8%	7·8%
Patients with staphylococcal infection ..	1 (1·3%)	33 (40·7%)	41 (50·6%)	3 (3·7%)	3 (3·7%)

Site of Lesions.—The common sites of infection were: eyelids (22%), forearms (19%), face (14%), axilla (8%), nose (8%), back of neck (4%), other sites (25%).

Phage-typing of Staphylococci

A total of 181 different strains of staphylococci were tested and 147 (81%) of the cultures were typable. Of the 113 strains isolated from the frank pus of boils or styes, 96 (85%) were typable. The 68 nasal strains yielded a slightly but not significantly lower proportion—51 (75%)—of typable strains ($\chi^2=2.6$, D.F.$=1$; $0.05<P<0.1$).

Williams and Rippon (1952) have described three broad groups (I, II, and III) of phage patterns found in staphylococci. According to Rountree (1953), in Sydney there is a preponderance of Group II strains in cases of boils. In 45 strains from her patients with boils, 5 were penicillin-resistant and belonged to Group III, and 50% of the remaining strains belonged to Group II.

In this investigation 93 of the strains isolated from the pus of boils and styes were tested for penicillin sensitivity and 23 (25%) were found to be resistant (Table II). Of the 70 penicillin-sensitive strains, 32 (46%) belonged to Group II and possessed phage patterns 3A, 3B, 3B/3C, 3C/51, etc. These results show a close correspondence with those obtained by Rountree. Williams and Dowsett (1953), in a less homogeneous series of patients with minor septic lesions, did not observe this preponderance of Group II strains, but they admit the possibility that such a preponderance may have been masked by a number of patients cross-infected in hospital.

TABLE II.—*Frequency Distribution of Phage Patterns in 93 Strains of Staphylococci from Boils and Styes*

	Present Series (London)		Rountree (Sydney)	
	Penicillin-sensitive (70)	Penicillin-resistant (23)	Penicillin-sensitive (40)	Penicillin-resistant (5)
Group I	25 (36%)	12 (52%)	12 (30%)	
„ II	32 (46%)	1 (4%)	20 (50%)	
„ III	3 (4%)	2 (9%)	4 (10%)	5
Not lysed ..	10 (14%)	8 (35%)	2 (10%)	
„ classified ..	—	—	2	

Nasal Staphylococci in Boils and Styes

Coagulase-positive staphylococci were cultivated from a nasal swab from 48 (68%) of the 71 patients with boils and from 17 (77%) of the 22 patients with styes (Table III).

TABLE III.—*Nasal Staphylococci in Patients with Boils and Styes*

	Identical Strains in Lesion and Nose	Strains in Lesion and Nose Not Typable	Different Strains in Lesion and Nose	No Nasal Staphylococci
Boils (71)	26 (37%)	10 (14%)	12 (17%)	23 (32%)
Styes (22) ..	17 (77%)	—	—	5 (23%)

Valentine and Hall-Smith (1952), who reported a nasal carriage rate of 68–80% in cases of furunculosis attending the out-patient department of the London Hospital, also compared the nasal strain and the strain from the lesion in 25 of their cases, and concluded that the two were identical in every case. Similarly, Tulloch (1954) found that 18 (81.8%) out of 22 typable pairs of cultures obtained from cases of furunculosis were identical.

In this series, however, the pairs of cultures were tested in 71 cases of boils, and in 12 (17%) the nasal strain was either a different type from the lesion (7) or was incapable of phage-typing (5) (Table IV).

TABLE IV.—12 *Cases of Boils with Different Strains of Staphylococci in Lesion and Nostril*

Case	Date	Age	Sex	Site of Boil	Phage	Penicillin Sensitivity
T. B.	22/3/52	14	M	Abdomen	3C	S
				N/S	42C	R
J. H.	6/1/53	8	M	L. forearm	52	R
				N/S	No lysis	R
S. T.	1/10/52	26	F	Face	3B/3C/55	S
				N/S	No lysis	S
J. W.	24/2/53	32	M	R. forearm	3C/55	S
				N/S	29	S
J. W.	27/3/53	32	M	R. shoulder	3C/55	S
				N/S	29	S
M. J.	24/6/52	11	M	Shoulder	55	S
				N/S	29	S
C. C.	2/9/52	33	M	Back of neck	52A	S
				N/S	No lysis	R
F. H.	20/2/52	31	M	Neck	71	S
				N/S	No lysis	R
W. R.	13/5/52	57	M	Groin	52A	S
				N/S	70	S
W. R.	10/6/52	57	M	Shin	52A	R
				N/S	No lysis	S
C. B.	29/12/51	11	F	Leg	52A	R
				N/S	3B	S
C. B.	14/11/52	11	F	Face	52A	R
				N/S	3B	S

In the case of styes, where there is direct continuity with the anterior nares, 17 (77%) of the 22 patients carried nasal staphylococci. Moreover, the strains from the stye and the nose were identical in every case tested.

As Table III shows, there is a significantly higher nasal carriage rate in cases of styes—17 (77%) of 22—compared with 36 (51%) of 71 ($\chi^2=4.91$; D.F.=1 ; $0.02<P<0.05$).

Recurrent Staphylococcal Infections

A recurrence of infection was noticed in 16 (20%) of the 81 patients in this series. In 12 cases recurrence was observed after one to five months, in three cases after ten to fourteen months, and in one case after eighteen months. Some of this group of 16 patients had received a daily injection of 500,000 units of crystalline penicillin for five days.

As Table V shows, in every case of recurrent infection investigated the phage type of staphylococci recovered from the initial lesion was identical with that obtained from the subsequent lesion. It was concluded, therefore, that in the patient suffering from recurrent crops of boils or styes there was a failure to eliminate a particular strain of staphylococcus rather than repeated fresh infections with strains of different phage types.

TABLE V.—*Seven Patients with Recurrent Staphylococcal Infections*

Case	Age	Sex	Date	Lesion	Phage
B. E. ..	12	F	5/1/52	Boil on forearm	3C+
				N/S	3C+
			12/1/52	Stye	3C+
				N/S	3C+
I. P. ..	34	F	17/3/52	Stye	42E
				N/S	42E
			27/3/53	Boil on back of neck	42E
				N/S	42E
Y. S. ..	31	F	7/2/52	Boil on chin	52A
				N/S	52A
			29/9/52	Boil on leg	52A
C. B. ..	11	F	29/12/51	Boil on leg	52W
				N/S	3B
			14/11/52	Boil on face	52A
E. B. ..	19	F	29/1/52	Stye	3B
				N/S	3B
			31/3/52	Boil on upper lip	3B
				N/S	3B
P. B. ..	16	F	28/2/52	Boil on nose	—
			9/7/52	,, ,, face	—
				N/S	—
G. M...	22	M	29/12/52	Boil on back of neck	—
				N/S	—
			27/4/53	Boil on arm	—
				N/S	—

— Signifies no lysis by phages.

Case J. W.—A lorry driver aged 32 came to the surgery on February 24, 1953, with a moderate-sized boil on the right forearm. Boil—*Staph. aureus*, phage 3C/55, penicillin-sensitive; nasal swab—*Staph. aureus*, phage 29, penicillin-sensitive. He was treated with 500,000 units of crystalline penicillin systemically for five days and, in an attempt to prevent further boils developing, he was told to wash the whole arm with cetrimide 1% *B.P.*, apply strong iodine solution to the area around the boil, and, after drying with a clean towel, to dust the whole arm with boric talc dusting-powder. In spite of this treatment he developed a second boil on the right upper arm on March 7. Boil: *Staph. aureus*, phage 3C/55, penicillin-sensitive; nasal swab: no staphylococci. On this occasion he was simply treated with kaolin poultice, but on March 27 he developed a third boil on the right deltoid region. Boil: *Staph. aureus*, phage 3C/55, penicillin-sensitive; nasal swab: *Staph. aureus*, phage 29, penicillin-sensitive.

In this case it was noteworthy that the nasal strain was different from the strain recovered from the boil, and that this strain persisted on the third occasion. The second boil developed in the absence of nasal staphylococci.

Case M. F.—A female student aged 27 came to the surgery on August 9, 1951, with a boil on the left elbow region and complained of recurrent boils. Boil—*Staph. aureus*, phage 42E. On October 9 she again presented with a boil on the left knee. Boil: *Staph. aureus*, phage 42E. She went to study in Oxford during most of 1952, but on September 29, 1952, she came again to the surgery with boils. Boil on right axilla—*Staph. aureus*, phage 42E; boil on right shin—*Staph. aureus*, phage 42E; nasal swab—*Staph. aureus*, phage 42E.

In this series of recurrent boils self-infection from a staphylococcal focus in the nose was not found to be of major importance. Of the 16 patients with recurrent lesions, six had an identical strain of staphylococcus in the lesion and nose, three had strains which were incapable of phage-typing, four had different strains in the nose and lesion, and three had no staphylococci in the nose. The last group of three patients with recurring lesions in the absence of nasal staphylococci are summarized briefly below. It will be seen that in the first case three attempts failed to show nasal staphylococci, and in the second case two attempts also failed.

Case M. K.—A man aged 30. September 3, 1952: boil on left forearm—phage 3C; nasal swab—no staphylococci. July 31, 1953: boil on right forearm—phage 3C; nasal swab—no staphylococci. October 13, 1953: boil on left elbow—phage 3C; nasal swab—no staphylococci.

Case E. H.—A woman aged 32. June 24, 1952: boil on breast—phage 52A; nasal swab—no staphylococci. November 26, 1952: boil on leg—phage 52A; nasal swab—no staphylococci.

Case A. C.—A boy aged 12 years. January 16, 1952—abdomen—phage 3C; nasal swab—phage 3C. July 7, 1952: abdomen—phage 3C; nasal swab—no staphylococci.

The size of the lesion and its associated constitutional disturbance appeared to have an effect in recurrence. As the case described below illustrates, a large boil or carbuncle may be followed in some patients by a prolonged period of freedom from boils.

A bus conductor aged 37 came to the surgery on July 30, 1953, with a boil in the right axilla. During 1941-2 he had suffered from very frequent crops of boils, but at the end of 1942 he developed a large carbuncle on the right forearm, and following this he had remained free from boils until the present infection.

Penicillin-resistant Staphylococcal Infections in General Practice

The incidence of penicillin resistance has been studied by doctors working in hospitals. Barber and Rozwadowska-Dowzenko (1948), for example, have reported that the incidence of penicillin-resistant strains of staphylococci was 14% in 1946, 38% in 1947, and 59% in 1948. No data were obtainable for infections in general practice, but comparative studies of in-patients and out-patients showed a lower incidence of resistant strains in the latter group (Forbes, 1949).

In the present investigation, 93 strains of staphylococci from the pus of boils and styes were tested at Colindale by the dried disk technique, and 23 (25%) were resistant to penicillin. Of 68 strains obtained from the nostrils of the same patients, 21 (31%) were resistant (Table VI). The phage patterns found in the resistant strains are shown in Table II. Twelve of the 23 strains belonged to Group I, and 8 of the remainder were resistant to phage lysis.

TABLE VI.—*Incidence of Penicillin-resistant Staphylococci in* 161 *Strains from General Practice (Dried Disk Impregnated with* 2 *Units Penicillin)*

Source		Penicillin-resistant
Boils (71) } Styes (22) }	.. ..	23 (25%)
Nasal strains (68)	.. ..	21 (30·9%)
Total	161 ..	45 (28%)

In hospital series (Barber and Whitehead, 1949) a larger proportion of the resistant strains have been found to belong to Group III, although Williams *et al.* (1953) have also found a number of Group I strains. The low incidence of penicillin resistance in Group II strains confirms previous observations on hospital patients.

Forty-six strains in this series were also tested for sensitivity to chloramphenicol and chlortetracycline ("aureomycin"). No chloramphenicol-resistant strains were found, and the two strains which were chlortetracycline-resistant belonged to Group I. The emergence of resistance after a course of penicillin was noticed on one occasion.

Case W. R.—A man aged 57 developed a boil on the left groin on May 13, 1952. Boil—phage 52A, penicillin-sensitive; nasal swab—phage 70, penicillin-sensitive. He was treated with crystalline penicillin, 500,000 units daily for five days, but on June 10 he developed a boil on the shin. Boil—phage 52A, penicillin-resistant; nasal swab—no phage lysis, penicillin-sensitive.

In view of the previous findings in cases of recurrent infection, it was unlikely that the patient had a fresh infection with a resistant strain of 52A, and it was more probable that there was a change of sensitivity following a course of penicillin. In this case it was noteworthy that the nasal strain (of different phage type) remained penicillin-sensitive.

Indeed, the presence of penicillin-resistant staphylococci in the nostril of a patient with a boil or stye had little relation to the sensitivity of the strain isolated from the lesion. For example, three patients are described below who harboured penicillin- and phage-resistant staphylococci in their nostrils and yet developed infections with penicillin-sensitive phage-typable strains.

Case C. C.—Aged 33. Boil on back of neck—phage 52A, penicillin-sensitive; nasal swab—no phage lysis, penicillin-resistant.

Case T. B.—Aged 14. Boil on abdomen—phage 3C, penicillin-sensitive; nasal swab—42C, penicillin-resistant.

Case F. H.—Aged 31. Boil on neck—phage 71, penicillin-sensitive; nasal swab—no phage lysis, penicillin-resistant.

Conversely, patients were encountered who were suffering from penicillin-resistant infections and yet carried penicillin-sensitive nasal strains. Case W. R. showed this, and two further cases are described below.

Case R. E. H.—Aged 40. Boil on arm—no lysis, penicillin-resistant; nasal swab—no lysis, penicillin-sensitive.

Case C. B.—Aged 11. Boil on leg—phage 52A, penicillin-resistant; nasal swab—phage 3B, penicillin sensitive.

Epidemiology of Staphylococcal Infections

Although there have been many reports in institutional outbreaks of staphylococcal infections, only one account could be found of the spread of these infections within the home. Harrison (1948) described an outbreak of staphylococcal infection which occurred in a family of nine living under rather crowded conditions in an Oxfordshire village. In this family there were multiple examples of cutaneous infections; two children developed acute suppurative arthritis and a third child developed acute osteomyelitis. The same phage pattern of staphylococcus was responsible for all three cases.

As stated at that time (*Lancet*, 1948): "This is a striking example of the epidemic potentialities of staphylococcal infections in the home, and it makes one wonder whether multiple staphylococcal infections of the skin in a household may not also be due to the spread of a single strain of staphylococcus from person to person. . . . In the home only the doctor can assess the part of the staphylococcus in family infections."

Without the phage method of typing, however, no reliable epidemiological study could be made, for the simultaneous development of two cases of staphylococcal infection in a household does not necessarily imply the spread of a strain from one to another. The following case illustrates this.

On February 20, 1952, a husband and wife both came to the evening surgery complaining of boils. The husband had a boil on the side of the neck, and his wife had a boil on the upper arm. Bacteriological studies showed: husband: boil on neck—phage 71; nasal swab—no staphylococci; wife: boil on arm—phage 52A; nasal swab, staphylococci not typable.

In this investigation it was possible to discover nine families in which there was spread of a single phage type of staphylococcus from person to person within the household (Table VII).

The immediate infectivity of a boil or stye appeared to be low, as only once did simultaneous lesions occur in other members of the household. In the other families the staphylococcus established itself so that over the course of months first one member and then another developed lesions with the same phage type of staphylococcus. No fewer

TABLE VII.—*Nine Families with Multiple Staphylococcal Infections*

Family	Name	Relationship	Age	Date	Lesion	Phage
1	E. G.	Mother	40	29/9/51	Boil on axilla	3B/3C
					N/S	3B/3C
	E. G.	Daughter	14	29/9/51	Boil on finger	3B/3C
					N/S	3B/3C
				21/4/53	Boil on axilla	3B/3C
					N/S	3B/3C
	D. G.	Son	10	21/4/53	Boil behind ear	3B/3C
					N/S	
2	T. B.	Brother	14	22/3/52	Boil on abdomen	3C
					N/S	42C
	S. B.	Sister	2	19/6/52	Boil on buttock	3C/55
					N/S	55
3	S. T.	Sister	16	12/12/51	Stye left lid	3C/55
					N/S	3C/55
	L. T.	Brother	22	17/6/52	Boil on right knee	3C/55
					N/S	3C/55
4	J. T.	Son	13	15/2/53	Boil on back of neck	3C/55
					N/S	3C/55
	S. T.	Mother	30	18/5/53	Stye	3C/55
					N/S	3C/55
5	L. K.	Daughter	5	30/8/52	Stye	3C/55
					N/S	3C/55
	H. K.	Father	30	3/9/52	Boil on forearm	3C/55
					N/S	3C/55
6	M. M.	Father	25	14/5/53	Stye	3C/55
					N/S	3C/55
	B. M.	Daughter		28/8/53	Boil on buttock	3C/55
7	Y. S.	Mother	31	6/5/52	Boil on chin	52A
					N/S	52A
	M. S.	Daughter	13	19/4/53	Boil on leg	52A/79
					N/S	52A/79
	A. S.	Father	39	10/7/53	Boil on axilla	52A
					N/S	No staphs.
8	M. V.	Son	13	27/3/52	Boil on elbow	No lysis
					N/S	,, ,,
	H. V.	Father	42	11/12/52	Boil on buttock	,, ,,
					N/S	,, ,,
	M. V.	Mother	44	14/1/53	Boil on finger	,, ,,
					N/S	,, ,,
9	C. B.	Sister	11	9/12/51	Stye	3B
					Boil on leg	52A
					N/S	3B
	E. B.	Sister	19	29/1/52	Stye	3B
					N/S	3B
	P. B.	Sister	17	28/2/52	Boil on nose	No lysis
	M. B.	Sister	18	27/9/52	Stye	52A
					N/S	52A

than 24 out of the 81 patients in this series were members of the nine "staphylococcal families" in which this case-to-case spread had occurred.

Discussion

A high nasal carriage rate of staphylococci occurs in normal people. Miles *et al.* (1944) in a summary of the literature until 1944, reported a rate of 27–47% in normal subjects, and later accounts give similar results (Martin and Whitehead, 1949; Barber *et al.*, 1949; Forfar *et al.*, 1953).

In the 71 patients with boils in the present study, coagulase-positive staphylococci were cultivated from nasal swabs in 48 (68%)—a rate which corresponded with that reported by Valentine and Hall-Smith (1952). On comparing the strains from the lesions and the nose in 25 of their cases they found them identical in every case. Tulloch (1954), who obtained similar results, claimed that "the nose is the primary source of infecting organisms in most cases of chronic staphylococcal dermatoses." This may be true of cases of sycosis barbae and impetiginous lesions of the face, but in this series of 71 patients with boils 23 (32%) carried no nasal staphylococci and 12 (17%) carried different strains in the lesion and nose.

Self-infection from a reservoir of staphylococci in the nose could therefore have occurred in only about 51% of cases of boils. Moreover, the elimination of the nasal strains (a difficult procedure) may not necessarily be followed by freedom from recurrences, for three cases were described with recurring infections in the absence of nasal staphylococci.

In the case of styes, however, where there was a higher nasal carriage rate and the strains from the lesion and nose were identical in all the cases tested, the nasal staphylococci probably played a more important part.

This difference was well illustrated in the following case.

December 29, 1951: Right stye—phage 3B, penicillin-sensitive; left stye—phage 3B, penicillin-sensitive; boil on leg—phage 52A, penicillin-resistant; nasal swab—phage 3B, penicillin-sensitive. November 14, 1952: Boil on face—phage 52A, penicillin-resistant; nasal swab—phage 3B, penicillin-sensitive.

Here the penicillin-sensitive strain (3B) present in the nose appeared to be responsible for the styes of both eyes (3B), but the boil was caused by a penicillin-resistant strain of different phage type (52A). When there was a recurrence of a boil nearly a year later it was caused by a similar strain to the original boil (52A), although the penicillin-sensitive strain (3B) was still present in the nose.

Recurrent Staphylococcal Infections.—In only about 51% of these patients with recurring lesions with the same phage type of staphylococcus was it possible to demonstrate a staphylococcal focus in the nose. The organisms may have been present over a wide area of skin around a boil, where they remained dormant for many months. The fact that most rigorous treatment of the skin with cetrimide 1%, strong iodine solution, and an antiseptic dusting powder still failed to prevent recurrence (Case J. W.) suggested that the staphylococci may have been present in the deeper layers of the skin.

In a small boil or stye the staphylococci probably exerted a feeble antigenic stimulus, which may have been still further reduced in cases which received systemic penicillin.

Summary

A clinical, bacteriological, and epidemiological study of 81 patients with boils and styes has been made in a practice on a housing estate in North London.

Forty per cent. of the patients were between 5 and 19 years and 50% were in the age group 20–44 years.

The eyelids, arms, face, and nose were the most common sites for boils.

Of 113 strains of staphylococci obtained from the pus of boils and styes, 96 (85%) could be phage-typed.

The preponderance of Group II strains among the penicillin sensitive staphylococci, which Rountree noticed in Australia, has been confirmed.

The total nasal carriage rate in patients with boils was 37–57% and in patients with styes 77%. In the case of styes the nasal strain and the strain from the eyelid were identical in 17 sets of cultures tested.

Of the cases in this series, 20% developed a recurrence of infection after one to twenty-four months. This recurrence was associated with the reappearance of the original phage pattern of staphylococcus and not a fresh infection with a different strain.

Multiple cases in a household occurred in 9 (11%) families. In these there was case-to-case spread of a particular phage type of staphylococcus.

Of 93 strains of staphylococci from the pus of boils and styes, 23% were penicillin-resistant. These resistant strains were mainly in Group I or were insusceptible to phage-typing. Two chlortetracycline-resistant strains (both Group I) were encountered in 46 strains.

I wish to express my gratitude to Dr. R. E. O. Williams, of the Staphylococcal Reference Laboratory, Colindale, who was not only responsible for the phage-typing of the numerous strains of staphylococci but also gave me useful advice and encouragement in the preparation of this paper. Dr. Mary Barber also gave valuable constructive criticism.

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PRIMARY TUBERCULOSIS OF THE LUNG

ANALYSIS OF 298 CASES OF PRIMARY COMPLEX SEEN IN A CHEST CLINIC (1948–51)

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The study of primary tuberculosis is both important and interesting, and the literature dealing with it is extensive. While the primary lesion can occur at any site in the body, 90% of these lesions are found in the lungs (Miller, 1952). Conversion of the tuberculin reaction from negative to positive is normally uneventful, but the literature on the subject mainly concerns cases in which conversion is accompanied by symptoms and signs severe enough to warrant admission to hospital. Although Schlesinger (1953) quoted a mortality of 14% of 400 cases admitted to the Hospital for Sick Children, Great Ormond Street, between 1945 and 1953, he stressed that a large group could be treated and supervised as out-patients. This paper is concerned with cases of primary tuberculous infection seen at the Swansea Chest Clinic

from 1948 to 1951, inclusive, of which 73.5% were treated at home, under clinic supervision.

Material

Case Material.—The population served is 230,000, and the cases dealt with were seen in clinic work, contact surveys, and hospitals. The case histories of all patients attending the clinic from 1948 to 1951, inclusive, in whom a diagnosis of primary complex was made, have been studied, and a follow-up was made to July, 1953. The youngest patient was 4 months old and the oldest 28 years.

Survey Material.—The survey deals with 298 cases of primary pulmonary lesions, including 57 in which the primary complex was calcified and quiescent when first seen, and 241 in which the lesion was active. Of the latter group, 79.7% progressed to clinical and radiological healing without complications (Table I). Below is given a detailed analysis of the clinical features of the cases, with the complications encountered.

TABLE I.—*Analysis of 241 Active Cases of Primary Complex With and Without Complications*

Age	Total	Healed without Complications	No. with Complications						
			Miliary Tub.	Tub. Men.	Bone, Joint Tub.	Persistent Collapse	Progression	Other Types R.T.	Total
0–4	83	83%	1	1	3	7		2	14
5–7	54	87%	1			5		1	7
8–11	42	90%		1		2		1	4
12–15	24	71%			1	3	1	2	7
16–19	27	52%				2	8	3	13
20+	11	64%					3	1	4
	241	79·7%	2	2	4	19	12	10	49

Analysis of 57 Radiologically Healed Cases.—Of the 298 patients, 236 were under 13 years of age, and 57 (24%) of these were regarded as radiologically healed when first seen. A history of contact was obtained in 67%, and 34% had symptoms. A more detailed account is presented in Table II. It is noted that a contact history was not obtained in one-third of the cases and that two-thirds were symptom-free. Routine follow-up of these cases was considered unnecessary, but the medical practitioner was invited to refer them should relevant symptoms develop.

TABLE II.—*Analysis of 57 Calcified Cases Under 13 Years of Age with Details of Contact and Symptoms*

Age	No.	% with Contact	% with Symptoms	Presenting Symptoms
0–	0	0	0	
1–	0	0	0	
2–	6	83	17	1 tuberculous knee
3–	2	100	100	1 tuberculous meningitis; 1 phlycten
5–	17	70	29	1 whooping-cough; 3 tuberculous adenitis; 1 cough—bronchiectasis
8–	20	60	50	1 tuberculous adenitis; 9 cough—3 of whom had asthma
12–	12	75	25	1 tuberculous adenitis; 2 cough—1 of whom had bronchiectasis
Total	57	67%	34%	

Symptomatology and Mode of Onset

Of the 298 cases, 209 (70%) presented with definite symptoms, the remainder being discovered during routine surveys. Those occurring in the healed cases and tabulated in Table II are included. Three per cent. presented with an acute pneumonic onset; 20% with either phlyctenular conjunctivitis or erythema nodosum; 6% with a pleural effusion; 11% with a post-primary lesion; 3% with an unexplained pyrexia; and 57% with a gradual onset of cough and a varying degree of lassitude (although these symptoms were present in 60% and 68% respectively of the total 209 cases). Details are shown in Table III.

Cough and General Symptoms.—It will be seen that cough as a presenting symptom occurs more often under the age of 8 years than in the older age groups. This is of doubtful

TABLE III

Age	No. in Survey	No. with Symptoms	Cough	General Symptoms (Lassitude, etc.)	P.U.O.	Acute Pneumonic Onset	Erythema Nodosum	Phlyctenular Conjunctivitis	Pleural Effusion	Post-primary Lesion
				%	%	%	%		%	%
0–4	91	55	74% (Wh.-C. 17%)	67	0·5	5	5	0·5	0	20
5–7	71	45	71% (Wh.-C. 16%, measles 6%)	71	11	4	11	9	4	7
8–11	62	39	54% (Wh.-C. 5%, measles 5%)	64	2	5	23	0	8	13
12–15	36	36	33%	53	0	0	22	0	11	5
16–19	27	24	58%	83	0	0	33	0	17	4
20–28	11	10	50%	90	10	0	40	0	0	10
Total	298	209	60% (11% Wh.-C., 2% measles)	68	3	3	18	2	6	11

significance, in view of the high incidence of upper respiratory tract infection in the younger group, but it is perhaps an interesting observation that a history of a recent attack of whooping-cough was obtained in approximately 15%. General symptoms include lassitude, anorexia, and failure to gain weight. Lassitude is a subjective phenomenon, and, as such, minor degrees are more likely to be commented upon by older patients, and the high figure of 80–90% in this group is noted.

Erythema Nodosum.—A history of erythema nodosum was obtained in 18%, and the analysis shows that over the age of 16 such a history was obtained in 35% and under that age in 12%.

Pleural Effusion.—This occurred in 6% of the cases. The seemingly low figure is explained by the fact that we have included only those cases in which serial radiography revealed an associated primary complex. Thirteen cases had a pleural effusion and a visible primary lesion when first seen. In five others the effusion developed within seven months.

Phlyctenular Conjunctivitis.—Five cases presented with phlyctenular conjunctivitis, and in four others this developed later with a time interval varying from one month to one year.

Complications

Complications developed in 16.4% of the 298 cases, and are discussed in four main groups—namely, collapse, bloodstream dissemination, progression of the parenchymatous component, and a heterogeneous group in which classification was difficult.

Collapse

This was diagnosed radiologically and no differentiation between atelectasis, collapse, and collapse consolidation was made. Bronchography and bronchoscopy were not undertaken in all cases. Forty-four (15%) of the total showed radiological evidence of collapse at some stage. Jones, Rafferty, and Willis (1942) gave a figure of 12% and Richards (1944) 14.4%. The latter further states that 50% of these aerated spontaneously within two years, so far as could be judged radiologically—that is, without routine bronchography. The comparable figure in our series was 57% (25 cases). Details of these are found in Tables IV and V. In Table IV the figures of Richards are incorporated for comparison. It will be seen that collapse is most frequent under the age of 5, and that there is a decreasing incidence in the older age groups. Of the 44 cases, 16 were of segmental distribution, 11 of these being in the right upper lobe.

It is a well-recognized clinical observation that the primary lesion involves the right lung more often than the left, and therefore collapse would be expected to occur more frequently on this side. This is supported by our figures, which show that the right lung was involved three times as often as the left, while the lower lobe of each was equally affected. Collapse of the right upper or right middle lobe was seen in 31 (70%) of the 44 cases. A collapsed segment or lobe may

TABLE IV.—*Incidence of Collapse in 298 Children with Primary Pulmonary Tuberculosis (Analysis of Richards (1944) Included for Comparison)*

Age	Total No. of Cases		Collapse or Atelectasis		Percentage	
	Present Series	Richards	Present Series	Richards	Present Series	Richards
0–5 ..	121	239	21	50	17	21
6–9 ..	73	114	9	8	12	7
10+ ..	104	92	14	6	13	6·5
Total ..	298	445	44	64	15	14·4

TABLE V.—*Site of Collapse in 44 Cases*

Age	No. in Survey	No. with Collapse	Right Lung			Left Lung		
			Upper Lobe	Middle Lobe	Lower Lobe	Upper Lobe	Lingula	Lower Lobe
0–4	91	21	7	10*	1	1	0	2
5–7	71	9	3	2†	2	1	1	
8–11	62	6	2	5			1	
12–15	36	6	1	1	1	2		
16–19	27	2					1	
20+	11							
Total	298	44	13	18	4	4	3	2

* One with R.L.L. and two with L.L.L. † One with L.L.L.

persist or aerate. Of 22 such cases, 8 (36%) aerated within eight months and 14 (64%) within a year, but 8 cases took considerably longer. At the time of writing they were symptom-free with satisfactory *x*-ray appearances, but bronchograms had not been carried out. One case appeared to have aerated in nine months, but symptoms of bronchiectasis developed and a bronchogram confirmed the diagnosis. Three cases, although not regularly observed, attended later, complete aeration having occurred. A degree of atelectasis, mainly linear, persists in 10 cases. These are symptom-free, and we agree with Adler and Richards (1953) that unless symptoms are present resection is not indicated.

Seven of the 44 (16%) developed bronchiectasis; this agrees closely with the figure of 15.6% given by Richards (1944). Resection was carried out on one of these, another was awaiting operation, and the third was in hospital for assessment, but the prognosis in this case is poor. The remaining four cases have minimal symptoms and operative treatment is not thought to be necessary.

Bronchoscopic aspiration of a protruding gland was performed in two cases, with satisfactory aeration of the involved lobe, and a successful resection was undertaken in four cases in which collapse persisted without evidence of bronchiectasis (see Table X).

Blood-stream Dissemination

Post-primary Dissemination.—Of the 209 cases with symptoms, 24 (11%) had post-primary dissemination when first seen. This was present in 20% of the 55 patients under the age of 5 (Table III). There were 14 cases of tuberculous adenitis, but these have not been analysed in detail. No case of urogenital tuberculosis or of tuberculous peritonitis occurred.

Miliary Tuberculosis and Tuberculous Meningitis.—Although these are complications of the primary complex they are often the first clinical manifestation of the disease, and frequently the underlying primary lesion cannot be seen radiologically. We have included only those cases in which the primary complex was radiologically visible (Table VI). Of the nine cases with miliary tuberculosis, dissemination was a presenting feature in seven and a true complication in two. In the cases of tuberculous meningitis it occurred as a presenting feature in six and a complication in two.

Tuberculosis of Bones and Joints.—Six cases had a radiologically visible primary complex in the lung. Details are given in Table VII.

TABLE VI.—*Analysis of 9 Cases of Miliary Tuberculosis and 8 of Tuberculous Meningitis (with a Visible Pulmonary Primary Complex)*

Age	Miliary Tuberculosis		Tuberculous Meningitis	
	Presenting as Such	Complicating Known Case	Presenting as Such	Complicating Known Case
0– ..	1 (contact+)			
1– ..		1		
2– ..	1			1 (contact+) died
3– ..	1 (contact+)		1 (Gland calcified,contact+)	
4– ..			1	
5– ..		1	2 (1 contact+)	1
8– ..	3 (1 with tub. men.)		1 (with miliary tub.)	
12– ..			1	
16– ..				
20+ ..	1			

TABLE VII.—*Details of Six Cases with Bone Tuberculosis and a Visible Primary Complex*

Age	Present as Such	Complicating Known Case
1– ..		2 spine (1 years later. Contact +; 1 14 months later. Contact−)
2– ..	1 knee. Gland calcified	1 spine: 2 months later. Contact+
5–8 ..	1 spine. Contact+	
12–16 ..		1 spine: 2 years later. Contact+

A positive contact history was obtained in 9 of the 23 cases analysed in Tables VI and VII.

Progression

By this term we mean enlargement and/or cavitation of the parenchymatous component as judged radiologically by serial films and tomography. Details are given in Table VIII. Of 38 patients 16 years of age and over, 11 (29%) showed progression. Below this age it is infrequent, there being only one case in our series. Lincoln (1951) states that progression occurred in 12% of her cases. All of our 12 cases gave a satisfactory response to treatment.

TABLE VIII.—*Twelve Cases with Progression of the Parenchymatous Lesion*

Sex	Age	Contact	1st Examination	Definite Progression	M.M.R.	Treatment
F	14	−	12/49	7/50	−	Lobectomy 8/51
F	16	−	Pres. with progression		−	Streptomycin with P.A.S.
M	17	−	"	"	−	" "
F	18	−	4/50	7/50	−	A.P.
F	18	+	8/50	11/51	−	Rest in bed
F	18	−	11/50	10/51	+	Streptomycin with P.A.S. A.P.
F	18	−	Pres. with progression		+	P.P.
F	18	+	1/51	5/51	−	Streptomycin with P.A.S.
F	19	−	Pres. with progression		+	" "
M	20	−	12/49	1/50	−	" " Thoracoplasty 4/51
F	21	−	5/50	3/51	−	Streptomycin with P.A.S. Seg. resection 2/53. Thoracoplasty 3/53
M	24	−	3/51	4/51	+	Streptomycin with P.A.S.

Other Pulmonary Complications

These complications (Table IX) were probably due to various factors, including mediastinal adenopathy and bronchogenic ulceration, late progression of the primary complex, and reinfection.

Bacteriological Investigation

Routine gastric lavage was not practised, owing to the difficulty of getting children to the clinic without breakfast. Tubercle bacilli were isolated by this means in 39% of the 79 cases admitted to hospital. Davies and Doherty (1942) record a figure of 37% obtained at a local hospital.

TABLE IX.—*Ten Cases with Other Pulmonary Complications*

Age	Sex	Contact	Comments	Treatment	Result
4	F	–	Developed destroyed lung	Streptomycin and P.A.S., pneumonectomy	Satis.
4	M	–	Developed bronchogenic spread	Streptomycin and P.A.S.	In hospital
7	M	+	Bronchogenic spread with cavitation one lung, and spread into the other	Streptomycin and P.A.S. (2 courses). Unsuitable for pneumonectomy	Died
8	F	+	Calcified gland 1949. Infiltration same side 1953	Under treatment	Under treatment
14	F	+	1 year later developed R.T. infraclavicularly (bilateral)	Streptomycin and P.A.S.	Satis.
14	F	–	Infraclav. R.T. when seen. Enlarged paratracheal gland	,, ,,	,,
17	F	–	Infraclav. R.T. when seen, with adenopathy	,, ,,	,,
18	M	–	Developed bronchogenic spread, with cavitation	Streptomycin and P.A.S. Lobectomy	,,
19	M	–	Infiltration other side 5 months later	Streptomycin and P.A.S.	,,
21	F	–	Adult type R.T. 4 years later	,, ,,	,,

Treatment

In active lesions bed rest at home was advised, as it was felt that separation from the home environment was unnecessary unless complications developed or the home conditions were unsatisfactory sociologically or from the presence of a case with active adult-type disease. The patient was seen at monthly intervals and progress assessed clinically and radiologically. The majority of cases required bed rest for about four months, and children were not allowed to attend school for a further six to nine months. Supervision at three-monthly intervals extending to six months continued for about three years, with further radiographs at the time of puberty.

Streptomycin and P.A.S. were not given routinely, but were administered when there was progression of the parenchymatous component, bronchogenic spread, or blood-stream dissemination.

Surgery.—A summary of the surgical procedures undertaken during the survey is presented in Table X.

TABLE X.—*Surgical Treatment*

Complication	Aspiration of Ulcerating Gland	Thoracoplasty	Lobectomy	Seg. Resection	Pneumonectomy
Atelectasis ..	2		2	2	
Bronchiectasis ..			1		
Progression ..		2	1	1	
Bronchogenic spread			1		1

Contact

A person was regarded as having "contact" if at any time there was close contact with a known case of respiratory tuberculosis in the household or the immediate circle of relatives and associates. Our figures do not include those cases which were found by a contact survey—that is, after the diagnosis of the primary infection. Details are shown in Table XI.

TABLE XI.—*Contact History of 298 Cases with a Primary Infection*

Age	Calcified		Non-calcified	
	Total	% with Contact	Total	% with Contact
0–4	8	87%	83	65%
5–7	17	70%	54	61%
8–11	20	60%	42	24%
12–15	12	75%	24	33%
16–19			27	19%
20+			11	20%
	57	67%	241	47%

A contact history was taken in each case. It is unlikely that contact with a known case of respiratory tuberculosis was missed, or that the incidence of the unknown case in the household varied significantly from group to group. It is therefore assumed that the low contact percentage in those over the age of 8 suggests infection from a source outside the intimate family circle. This, although disturbing, is perhaps in keeping with the fact that children around this age acquire new friends and increase their social activities.

A summary of the contact percentages in those who developed serious complications is presented in Table XII.

TABLE XII.—*Contact History in Cases Developing Serious Complications*

Blood-stream Dissemination (Tables VI and VII)	Progression (Table VIII)	Heterogeneous Group of Complications (Table IX)
39%	17%	30%

Discussion

We have analysed 298 cases of primary complex, including 241 cases in which the lesion was active. Serious complications developed in 20.3% of the latter, but with a mortality rate of less than 1%. Although 79.7% healed satisfactorily, there are three features in our survey which merit consideration from the epidemiological standpoint.

Contact.—From Tables XI and XII it is seen that, over the age of 8, approximately 75% were infected from unknown open cases of tuberculosis. This emphasizes the importance of taking a wide survey of all possible contacts whenever a case of primary infection is diagnosed.

Progression.—This was noted in 11 patients over the age of 16, four of whom were referred by the mass miniature radiography unit from a local factory. The natural history of respiratory tuberculosis shows the danger period of adolescence. To this is added in many cases the stress of entry into industry. It is hoped that B.C.G. vaccination of Mantoux-negative reactors at the school-leaving age will lessen this danger.

Miliary Tuberculosis and Tuberculous Meningitis.—Cases of tuberculous meningitis and miliary tuberculosis are seldom seen in the first instance at chest clinics. They are usually admitted direct to hospital before the stage of the primary pulmonary infection is recognized. This experience is common to other physicians working in chest clinics.

The above are three serious problems, and energetic measures are necessary for their elimination. Since 1950, B.C.G. vaccination is offered to all Mantoux-negative reactors seen at the clinic, whether there is a contact history or not. Increasing efforts are being made to find hidden sources of infection. A static mass miniature radiography unit is in operation with general-practitioner and general public sessions, while the mobile mass miniature radiography unit concentrates its activities on those employed in industry, commercial institutions, universities, colleges, and schools.

Summary

An analysis of 298 cases (241 active) of primary pulmonary tuberculosis seen at a chest clinic from 1948 to 1951 inclusive is presented.

Previous complications developed in 20.3% of the active cases.

Twenty-four per cent. of those under the age of 13 had a well-calcified lesion when first seen.

A degree of collapse occurred at some stage in 15% of the total, but 57% of these aerated spontaneously.

The mortality of the whole series up till July, 1953, was less than 1%.

The opinion is given that admission to hospital is unnecessary unless complications develop or the social conditions are unsatisfactory. Routine administration of antituberculous drugs is not indicated.

The surgical operations were performed by Mr. Dillwyn Thomas and Mr. Cyril Evans at Morriston and Sully Hospitals. Miss E. Rosser is thanked for the secretarial work.

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ADDENDUM.—The patient (aged 12) mentioned in the text as awaiting operation for bronchiectasis has since undergone a successful right lower lobectomy. Prior to operation, investigation by barium swallow, oesophagoscopy, bronchoscopy, and bronchogram revealed a fistula of the oesophagus 2 in. (5 cm.) above the cardia, extending into a basal branch of the right lower lobe bronchus, with secondary bronchiectasis and abscess formation.

SOME ASPECTS OF PARANORMAL HEALING

BY

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The attitude of early man towards the nature and treatment of disease was influenced by magic and superstition and later by formalized religion. In the sixteenth century academic medicine, following in the Hippocratic path, began to diverge from superstition and religious influence, although sorcery continued to play a part in medical practice. Within the authority of the early established Church healing was practised by laying on of hands, by prayer, and by anointing—rites frequently associated with magic and superstition (Frost, 1940). To-day in China and Africa the medicine man is thought to be active even where the Christian faith is adhered to. Dean Inge (1925) says: "It is quite unnecessary to go to Australia or Central Africa to find the savage: he is our next-door neighbour. The mentality of the stone age exists on our platforms and in our pulpits. There is no superstition too absurd to find credence in modern England—fetishes and tabus dominate London drawing-rooms."

In many countries sufferers from all kinds of disability are claimed to have been cured, or at least greatly relieved, by intervention of a "healer" after orthodox medical treatment has failed. Healing shrines such as Lourdes are not considered in this report, since religious faith is the major factor in the healing situation, no individual person being deemed to act as a healer endowed with specific powers. Organizations such as the City Temple combine faith- and individual-healing with orthodox medical treatment, so that no clear-cut assessment can be made of the part played by either. As explained later, this problem also arises in absent healing. Various forms of paranormal diagnosis and treatment are claimed by clairvoyants and mediums, but supporting evidence is hard to come by. (Father Robertus, of Rapperswill in Switzerland, is reputed to be a healer of animals.)

I have attempted to survey the nature and results of unorthodox ("paranormal") healing. "Healing," for the present purpose, is taken to mean the inducement of a state of comparative well-being by some form of personal contact, physical or mental. "With contact healing, there is the tangible human link of the healing medium between the healing spirit guide and the patient" (Edwards, 1953). The "physical" approach may include "manipulation" of a disabled part of the body or laying hands upon the part of the body near, or associated with, an organ. ("Manipulation," in this context, is an assisted encouragement of the subject to move, or allow to be moved, part of the body.) The "mental" method involves some form of prayer or mental communication from healer to patient at a distance. Quite often one finds the healer bringing his influence to bear while orthodox treatment continues—both claiming the credit. Absent healing is "a progressive process in which the first phase is a toning up of the general body condition," with concomitant "increased vitality, brighter outlook and sounder sleep," "as the causes are removed, so the symptoms of pain and discomfort lessen and disappear. Healing is very often received during sleep" (Edwards, 1946). A weekly letter from the healer to the patient is required "to maintain the continuity of the healing." (The patient does not necessarily know that the healer's aid has been sought.) These weekly reports, which present the healer with a picture upon which he can base his therapeutic activity, must involve an enormous volume of correspondence and time.

Method of Inquiry

I attended demonstrations of healing to gain information about the nature of this work and its results. Patients suffering from "incurable diseases" who had "not been helped by doctors" were to be healed by "spirit power" derived "not from us—we are agents—human contacts." The healer moved arthritic joints, ran his finger along deformed spines, and encouraged people to walk, stand upright, and so forth. (When given the opportunity of approaching a patient suffering from scoliosis, the circumstances did not permit of his examination; I was merely asked to agree that there was "spasticity" of the spinal muscles. Rejecting this when on the point of agreeing without checking the validity of the statement, I realized how difficult it must be, in the face of authoritative suggestion, for the subject not to accept any proposition put by the "healer.")

Some patients appeared to receive immediate benefit, in that they exhibited comparatively free, painless movement of joints which had apparently withstood medical treatment for years; but one woman, who was able to leave the platform without the two sticks hitherto in use, was again leaning heavily on them after the demonstration—a phenomenon savouring strongly of suggestion. Does anything happen to the sufferer treated by a healer, and, if so, what and why? The questions involve a study of the disability treated; does the disability improve, or does the patient's attitude towards it change, bringing with it apparent improvement of the specific and general condition? If such improvement occurs, is it linked with a specific psychological attribute essentially present in sufferer or healer, or in both? If this be the case, what is the means of communication in healing? What is the function of personal contact? Does absent healing depend on some form of telepathy?

I began to investigate individual cases reported in the press and elsewhere, including some submitted by healers and subjects. Later, I was granted space in the *British Medical Journal* inviting colleagues with knowledge of cases successfully treated by a healer to supply (with the patients' permission) copies of medical records or other relevant information. Many non-medical people concerned with healing co-operated, and one well-known healer, with every evidence of good faith, has been at all times ready to reply to questions and to offer facilities for investigation. More recently he has made efforts to expand the case material by inviting "healed" subjects to communicate direct. The co-operation of two hospitals for "incurables" was unsuccessfully sought. Explanatory letters and franked envelopes, sent to patients claimed to have received benefit from healing, were accompanied by a consent form to facilitate the routine request for medical records. Many reports made further follow-up certain to be fruitless. Some patients were interviewed and their statements checked against medical records, but it is necessary to emphasize the stress which has been laid upon the so-called "miraculous" cures of the patients investigated, and the paucity of suitable case material actually revealed: the few short case reports which follow illustrate the difficulties met with.

Analysis of 95 Cases Under Review

(1) In 58 cases it was not possible to obtain medical or other records, so that the claims remain unconfirmed.

(2) In 22 cases the records were so much at variance with the claims that it was considered useless to continue the investigation further.

(3) In two cases the evidence in the medical records suggests that the healer may have contributed to amelioration of an organic condition.

(4) In one case demonstrable organic disability was relieved or cured after intervention of the healer.

(5) Three cases improved but relapsed.

(6) Four cases showed a satisfactory degree of improvement in function, although re-examination and comparison of medical records revealed no change in the organic state.

(7) In four cases there was improvement when healing was received concurrently with orthodox medical treatment.

(8) One case examined before and after treatment by the healer gained no benefit and continued to deteriorate.

M. L. (Group 2), reported in the press as having been cured by a healer, writes, "I cannot claim to have derived any benefit as a result of that one visit, as that was more than two years ago, and it is only in the past few weeks that I have felt any improvement; whether this is due to treatment I have received at the hospital clinic I cannot say."

Mrs. M. H. (Group 2), the subject of an article in a well-known pictorial magazine, sent *her* history. After repeated investigation and treatment she was discharged, "presumably as incurable," obliged to continue wearing her surgical belt for thirteen years. In 1949 she went to her healer, at whose hands she was "cured." The hospital records revealed nothing to verify her history, and her doctor wrote in terms which did not substantiate her claims or those of the newspaper, giving his opinion that there was (at least) a large functional exaggeration factor.

J. R. (Group 5) was "permanently cured"—"psychic healing succeeded when doctors failed." He was "given up by professors and doctors who examined him as a hopelessly incurable case. Born paralysed in legs and arms, he was dumb and had a distended stomach. . . After four years he received one treatment and the paralysis left him . . . the next morning he spoke and he could run." He has now "grown into a fine young man, leading a normal, happy life." The hospital recorded treatment of rickets, coeliac disease, chicken-pox, whooping-cough, and Brodie's abscess of the ankle, and there is no mention of any other disability, temporary or permanent.

Mr. J. E. E. (Group 3) wrote: "In June, 1952, after having been on your list of absent healing, I suddenly recovered the sight in my right eye, which had been completely blind for over fifty years. It came as long sight, and was pronounced by my specialist optician as perfect, and the healing as miraculous"; he observed "vision perfect, eye clear, bright, and in splendid condition, no fear of deleterious effects."

The ophthalmologist concerned commented, "There is no miracle—he was a case of spontaneous dislocation of the lens, which was cataractous. The lens dislocated back into his vitreous chamber, which is the old operation known as couching, and is brought about by some violent exercise or some sudden jerk—generally forgotten when a miracle is under consideration. Although uncommon, it is a well-known clinical entity." (Could there have been functional blindness after the couching which was relieved by suggestion, the patient beginning to *see* after being encouraged to *look* ?)

Mr. R. B. (Group 3). A week after biopsy in June, 1953, Mr. B. was informed that he was suffering from cancer of the larynx, demanding a major operation. A healing interview followed during which his hoarse voice began to improve and gain in volume. On July 21, 1953, he was re-examined under an anaesthetic in hospital and informed that the findings were at variance with the previous report. The two specialists who examined him after he had had direct healing both reported "no cancer now," and one of them wrote later, "I doubt if anyone will give a definite reply. . . . My own belief is that it was pure fortunate coincidence that this man had a piece removed for biopsy and it happened to contain all of the carcinomatous tissue."

Miss M. B., aged 23, weighing 6 st. (38 kg.), dying of bilateral tuberculous cavities and laryngitis, improved immediately after being visited by a healer and is now a comparatively healthy young woman, hoping to be married. She denies taking any drugs at the relevant time, but her doctor writes, "From the very beginning of a course (of isonicotinic hydrazide) she made a gradual and continuous improvement—the tuberculous laryngitis cleared in about a month. At the time Miss B. fully acknowledged the efficacy of the tablets and was very conscientious about taking them." This case demonstrates the usual conflict of evidence.

Dr. O. (Group 4): "Doctor cured in three treatments." Sudden acute pain in the lower abdomen took Dr. O. to a surgeon and two other doctors, who diagnosed hernia, "small but definite," which could not be cured without operation. "I walked with difficulty, holding the rupture in with the fingers of my right hand. A friend, a spirit healer in his spare time, treated me by laying on of hands under spirit influence. After four or five treatments the hernia completely disappeared—there has been no trouble since."

This seemed at last to afford incontrovertible evidence in favour of the healer. But spontaneous "cure" is known by surgeons to occur in the absence of therapeutic intervention.

D. G. aged 37 (Group 5) mounted a "demonstration" platform with severe kyphoscoliosis and compensatory torticollis of long standing. The healer reduced the spinal curvature in his usual way by encouraging the patient to allow himself to move back and forth and sideways until marked improvement appeared in the spinal line. Meeting D. G. by chance after the demonstration and commenting on the apparent improvement in his back and on the residual torticollis, I offered to reduce the latter. This was achieved by placing one finger under his chin and encouraging him to allow his head to move into the normal position, at which point I said he would now remain well and left him, having gained his permission to check the hospital records. These disclosed a diagnosis of advanced spondylosis ankylopoietica; a Taylor jacket and supportive physiotherapy had been recommended. In the middle of 1951 he had complained of pain and stiffness and "would therefore appear to have developed a further increase in flexion deformity in the spine in the course of the last year." Reporting some months later, he revealed that the effects of the healer's treatment, and of my own, had lasted about three months, following which he had relapsed. A few weeks later he was admitted to hospital suffering from pulmonary tuberculosis.

This poses a question: even if the deformities had not relapsed, what is the nature of a power which assists in the healing of one disability while laying the body open to invasion by another, more dangerous, illnesss? What had happened in the disturbed mediastinum? Had the spinal manipulation been accompanied by intrathoracic trauma?

Mrs. G. M. L. (Group 5). A banner-line stated, "Deformity melted away." "Mrs. G. M. L., who had no power in her hands for about ten years, and whose arms had been crippled with pain, was helped from the stage by a journalist," who writes: "She gripped my hand with the strength of a normal person." This lady wrote: "I am sorry to tell you I am not cured of my complaint, but in fairness to Mr. —— (the healer), had I followed his advice and continued with the psychic healing at my local spiritualist church, I may have been by now. . . . I certainly did feel free of pain; *for the time* a new woman."

Miss E. W. aged 49 had, at the age of 3½ years, "been in splints for a year." She suffered from "congestion of the lungs" and "spinal trouble" "due to falls and tuberculosis." In 1949 the patient, following a fall, "became more and more tired." She visited a chiropractor—"three disks had slipped in the lumbar spine, and he thrust them into place." "He did not touch the dorsal spine, which was deformed, for fear of breaking it." Pain and disability increased in spite of orthodox physiotherapy and the patient asked for absent healing in 1950. After some months she "did not get any worse" but *was still reporting to the hospital for treatment.* Later "during the night I felt my neck being gripped and pulled, and when I got up in the morning I found the top of the spine (which, as far back as I can remember, had protruded) had slipped into place and I was able to bend my neck from there, which I had not been able to do." There followed a journey to the healer, who straightened the dorsal spine ("which was certainly a miracle after being deformed for forty-two years"). "I was able that day to throw away my sticks and run into the house. I have no trouble in my balance and can now walk normally." Writing in April, 1952, she says, "I am hoping to get further benefit." (Note the contradiction.)

I examined this lady, who appeared to be a reliable witness. She had visited a healer on the principle of trying anything—"it couldn't do much harm"—and she now had no symptoms apart from "the back [which] does get a little tired." The hospital out-patient notes of 1949–51 revealed a "dorsal kyphosis, considered probably due to an old tubercular lesion of childhood." The report continued, "One day, after I had not seen her for some months, she walked in and told me that she had been cured by a Christian Scientist. He had put his finger on the prominence of her spine and she had had no symptoms since. . . . I noted at the time that *there was no obvious change in the physical state*; the kyphosis was as marked as ever." Re-examining her with radiological aid in 1953, the surgeon writes, "It would seem, therefore, that the physical state is actually the same as it was before she had her treatment—that is, *the organic bone formation is actually the same.* There is no doubt, however, that *her movements are much better than they were before.*"

Obviously there had been great functional improvement in this case, but which therapy or therapist was responsible?

Mrs. L. W. aged 60 had a fifteen-years history of "rheumatism" with "enormously swollen" knees causing great interference with walking, with no response to treatment at various hospitals and clinics and at the hands of an osteopath. She received absent healing, before and after treatment by a healer in January, 1951. Although immediately relieved, considerable pain remained, but gradually the patient could lift her feet painlessly. The healer had lifted her leg right up without causing suffering, which she "couldn't possibly have stood if a hospital doctor (or she herself) had attempted it." She continued to receive treatment from a healer "for fear of slipping back." One night she was awakened by the feeling that the door had opened and a presence was beside her bed; she felt herself turned over and there was something like a murmur of voices in the room. She fancied herself "a little easier" next day. The hospital reported that since 1948 this lady had been attending for treatment of a non-toxic goitre, benign hypertension, obesity, and osteoarthritis of both knees, the latter checked by *x*-ray examinations. There was "considerable symptomatic improvement" when last seen. The physician wrote in October, 1952, to say ". . . she *seems to have improved subjectively* a good deal since the laying on of hands of her spirit healer—*we can find little change* since before this operation . . . the *angles of movement are about the same as they were at that time.*"

M. R., a boy aged 9 (Group 8) suffering from pseudohypertrophic muscular dystrophy, was examined in consultation in December, 1951. A healer later told him he "would get better and that he had straightened his back." (I had found no spinal deformity). The family doctor wrote in February, 1953, "I am sorry to report that in my opinion the condition is very definitely worse."

The following extracts from patients' letters to a healer indicate the difficulty of assessing the value of absent healing.

1. "My friend, who was to have undergone a serious operation last Tuesday, is now *out of hospital*, having been told that she has improved so much that no operation will be performed. Thank you for your intercession. . . ."

2. "I have spoken to the sister *in the hospital*, who told me that she (a girl of 6) was dying and the recovery was a miracle." (The illness was meningitis, treated in the hospital by modern methods.)

3. "The cancer specialist says she was a walking miracle . . . he had never had a case like it—the spine, and later the pelvis, which were attacked by cancer, have calcified and strengthened in a remarkable manner—thought she would never walk again, and gradually through your and the spirit doctor's help the use of her limbs returned." The patient a few days later wrote, "Dr. P. has *not* said I am cured, nor a walking miracle, but he was pleased with the way my spine had yielded to treatment. I still have almost as much pain as I had and still have to have frequent injections of omnopon."

4. "I was discharged *from the sanatorium* last Thursday (April, 1953), and, considering I had a tuberculous bowel and both lungs affected, I think this is a wonderful achievement. I cannot thank you enough for *all you have done* for me."

5. "A specialist said it was polio, but she [her mother] preferred to nurse him at home. He progressed very quickly, and his mother says that is the help that he [the healer] has given. . . . The specialist was surprised at the quick relief from complaints. His speech is normal again and he seems his own bright little self except he has a *slight limp in one leg.* We all feel that the prayers of the spirit people have helped him." (Probably less than 15% of poliomyelitis victims suffer from permanent paralysis.)

Discussion

This investigation covers about 100 such cases, most of which were treated by one healer, but all were claimed in the press or by the healer, or patient, to have derived considerable benefit after orthodox medical treatment had failed. It is reasonable to assume for the present purpose that the results of other or lesser-known healers will not differ greatly. One healer claims to benefit 85% of all cases brought to his notice—a number running into seven figures. Many doctors have failed to reply to specific inquiry, and it may be that any kind of investigation of "paranormal" phenomena is thought to savour of unorthodoxy and should therefore be avoided. This may account for the absence hitherto of any medically inspired research in this field.

Some of the patients investigated were functionally improved, although expert medical opinion admits no change in the organic condition except in those cases in which change is explicable in terms of normal medical experience. How was this achieved if other than by suggestion? In each of three cases, a change, rare but not unknown in orthodox medical experience, took place in the organic state soon after treatment by the healer. Was this coincidence? Thousands who have given up hope of improvement at the hands of orthodox medical practitioners either feel better or find new hope after contact with a healer. Is not this contribution of value to society?

The report of the Committee of the Lambeth Conference set up in 1920 states: "Our Committee has so far found no evidence of any cases of healing which cannot be paralleled by similar cures wrought by psychotherapy without religion, and by instances of spontaneous healing which often occur even in the gravest cases in ordinary medical practice. The facts do not, in our opinion, detract from the good done by many religious healers; and, where the religious influence is of a wise and reasonable kind, greater and more permanent results may be expected than from non-religious methods." The Church has again appointed a commission to study the problem. In the meantime the relevant facts of body–mind relationship continue to be elicited and formulated in the field of psychosomatics. The problem of causality has been discussed by Strauss (1952): "We have mind acting on mind as the efficient cause, mind

acting on body, body acting on mind, and body acting on body as *causae agentes*." It is also important to remember that "single pathology" is uncommon in that two or more (apparently) unrelated symptom-complexes may coexist in the patient and may follow different courses. Gould's (1953) dictum, "Affect is the mordant of conditioning," throws light on the significance of emotion in suggestion and auto-suggestion.

Notoriously, throughout the ages, many sufferers respond to any method other than the orthodox treatment *of the time*. Suggestion with or without hypnosis in the hospital or consulting-room is less likely to result in the disappearance of a wart than, for example, the burying of half a potato in the light of a full moon. It may be of significance that many forms of treatment which are successful while the rationale is accepted by the therapist begin to fail when new information casts doubt on this acceptance. The sword of logic pierces the shield of conviction, and treatment technique is no longer successful—one of the main factors in the "suggestion" situation having been eliminated. Too much, but still not enough, knowledge may thus be a handicap in therapeutics.

Summary and Conclusions

About a hundred cases, all claimed to have received full or partial benefit from a healer, have been followed up.

No single case revealed conclusively that the healer's intervention *alone* resulted in improvement or cure of a measurable organic disability.

Three cases showed marked improvement or cure of such a condition after the intervention of a healer, but the healer's case can be explained away in terms of orthodox medical experience.

It is possible that the healer may have some power to influence the progress of disease, although this has not been established during the present survey.

Many thousands, possibly millions, of sufferers are constantly seeking unorthodox aid, and it is important to assess whether, in general, the healer is a power for good or harm. Even if many who have not been helped by doctors are given hope, does the healer, by his intervention, prevent a significant number of patients from receiving adequate medical care in good time? Clinical psychiatrists, employing suggestion as a specific therapeutic technique, continue to achieve healing results at least as encouraging as those met with in this series, and on the evidence to date it is difficult to conclude that the healer's art is more than an empirical technique.

There remains a wide unexplored field of inquiry, and much individual case-work in different racial and social groups is necessary, first, to establish the facts of paranormal diagnosis and treatment, and then to correlate their relationships and significance. This field work might usefully include a review of cases in which improvement has occurred *after* the cessation of medical treatment *without* the intervention of a healer. Long-term controlled experiments in absent healing could be devised. It is possible that the exploitation of suggestion (other than placebos) in rehabilitation following disability of all types might prove to be a valuable adjunct to normal therapeutic practice, and it may well be that the attitude of doctor to patient, or to the disability, is of far greater significance than has hitherto been recognized, except in the psycho-analytic "counter-transference" context.

Case histories apparently substantiating the claims of the healer should be investigated by a suitable panel with access to the opinions of sub-specialists, since the accumulating evidence of body–mind relationship constantly reveals new psycho-physiological rationale in "cures" hitherto inexplicable. It may be useful to recall that Williams (1954) exhorts us "in medicine [to] expect the unexpected—but be surprised if it occurs."

Thanks are due to Mrs. K. M. Goldney, Mr. Harry Edwards, doctors, patients, hospital records officers, and others who have made this survey possible.

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TREATMENT OF ROUNDWORM WITH PIPERAZINE CITRATE ("ANTEPAR")

BY

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Piperazine in various forms has been used by French workers for the treatment of ascariasis (Fayard, 1949; Mouriquand *et al.*, 1951; Turpin *et al.*, 1952; Cavier, 1953). More recently, White (1954) has used "antepar," a syrup containing piperazine hydrate and citric acid, for the treatment of three children with roundworm infection. They received 0.5 g. twice daily (68 mg./kg./day), 1 g. twice daily (130 mg./kg./day), and 0.5 g. thrice daily (81 mg./kg./day) respectively. The worms were passed on the second or third day. Follow-up showed that complete elimination had been achieved. O'Brien (1954) used piperazine adipate in the treatment of two cases of ascariasis in children, giving 0.3 g. of the drug twice daily for several days. Worms were passed from the third to the sixth day of treatment. Apparently, no follow-up was made to determine whether or not all worms had been eliminated. In view of White's results and reported absence of toxic side-effects, it seemed likely that a single-dose treatment would be effective, and for this purpose tablets of piperazine citrate were prepared for use in East Africa. A syrup is a convenient vehicle for the administration of the drug to children, but it was thought that a tablet preparation would be more suitable for the treatment of adult populations overseas.

Methods

Field trials were carried out in a highly endemic area of Tanganyika in the neighbourhood of Kasulu. Patients were selected from out-patient departments, a school, and a native village, on the basis of direct microscopical examination of the stools in diluted Lugol's iodine. Only those showing numerous ascaris eggs of normal appearance were selected for treatment. Piperazine citrate was given in the form of tablets, each equivalent to 0.5 g. of the hydrate, and were swallowed with a draught of water. No restrictions were imposed upon the intake of food or alcoholic beverages, and no purge was given before treatment. Each patient was given a carton in which to place any worms passed with the stool, and was instructed to return with them. A second stool examination was made, where practicable, five or seven

days after treatment. Most patients were given magnesium sulphate twenty-four hours after the dose of piperazine, whether they had passed worms or not.

Results

Preliminary Tests.—Tests made upon patients in hospital showed that a single dose of 3 or 4 g. for an adult yielded a large crop of worms which appeared in the stools about twenty-four hours after the dose. A child, aged about 4 years, produced 14 male and 37 female adult worms after a dose of 2 g. An infant who was given 1 g. of the drug produced a number of worms, but still showed eggs in the stool a week later. No toxic side-effects were observed in any patient.

Schoolchildren.—The stools of 118 children aged 8 to 14 years from the Middle School at Kasulu were examined, and 39 were found to contain numerous ascaris eggs. The infected children were given a dose of piperazine citrate approximately related to body weight; those weighing 50 kg. and over received 3 g., those weighing 30 to 50 kg. received 2.5 g., and smaller children received 2 g. Of the 37 children who presented a second sample of stool for follow-up, 1 had been given 3 g. and was free from eggs; of 26 given 2.5 g., 19 were free from eggs; of 10 given 2 g., 7 were free from eggs. It is clear that this dosage was not sufficient to remove all the worms, although most of the children returned with parasites which they had passed on the morning following treatment.

Kabanga Mission Hospital.—A group of 37 patients showing ascaris eggs in the stools were treated by Sister Margaret at the Kabanga Mission Hospital near Kasulu. They were divided into two main groups, which were given 3 g. or 2 g. of the drug, irrespective of body weight. No toxic effects of any kind were observed, although some of those who received 3 g. were children. Nine patients received 3 g. of drug, and at a second stool examination five days later all were free from eggs, except for one woman with a heavy worm load, who produced 21 adult worms on the day following the dose. Of 19 patients who received 2 g., 12 were freed from eggs. Most of the patients returned with worms that they had passed. One child aged 1½ years was given 1 g. and was free from eggs five days later. Eight patients did not return for follow-up.

Village at Heru Juu.—Sixty-one inhabitants of an African community were examined and 29 had numerous ascaris eggs in the stools. Adults were given 3 g. of the drug and children 2.5 or 2 g. The numbers of worms brought for inspection varied from 1 to more than 200 per patient. The largest yield of 2 male and 15 female adult worms, together with a mass of more than 200 immature specimens, was returned by a child aged about 2 years who had received 2 g. of the drug. Yields of 15 to 20 adult worms were common. No follow-up examination of these cases was possible.

There was no evidence in any patient infected with hookworm or *Strongyloides* that the drug had any action upon these parasites.

Discussion

The above results show that piperazine citrate was effective in removing roundworms from the gut when given in a single large dose. In none of the cases treated was any toxic side-effect observed.

When treatment with piperazine salts is to be maintained for seven days, as for threadworm infections (White and Standen, 1953), care must be taken not to exceed the level of drug in the tissues tolerated by the patient. In the case of a single-dose treatment the problem of accumulation of drug in the tissues does not arise. A single large dose of 3 g. is usually sufficient to produce an effective concentration in the small intestine, but does not give toxic side-effects. The results of the trials suggest that all patients except children weighing less than 20 kg. should be given a dose of 3 g., and that the smaller children should be given 2 g.

Unpublished *in vitro* experiments made by one of us (O. D. S.) have shown that pig ascarides immersed in Ringer's solution containing piperazine citrate in concentrations of 1:500 or more slowly became immobilized in six to eighteen hours, although metabolism continued and the worms were not killed. Similarly, worms passed twenty-four hours after piperazine treatment in man recovered in a few hours when placed in Ringer's solution and kept at 37° C. It is likely that the slow immobilization of the worms produced by the drug, and its failure to excite violent movements, will lessen the risk of accident due to occlusion or perforation of the gut during the treatment of heavy infections in small children. However, the fact that the narcotic effect is transient has a bearing upon the efficient use of this anthelmintic.

If the patient is costive it may well be that the effect of the drug will pass off before the worms are eliminated, and in such cases a purge would seem to be necessary. Most of the patients treated in Kasulu produced their worms in a normal stool passed within twenty-four hours of treatment, and a purge in such cases was of doubtful value except as a means of removing residual eggs likely to invalidate follow-up examinations. In view of the slowness of action of the drug *in vitro* and the probable similarity of action in man, the question of the most suitable time to give a purge for the removal of narcotized worms is important. Where conditions permit, it would be appropriate to give a dose of piperazine citrate before the evening meal and a saline purge before breakfast on the following morning. Such a regimen would be impracticable in African out-patient departments and in mass treatments in the field. In such circumstances it would be best to rely upon normal bowel movement.

It is of interest to speculate upon the possible use of piperazine citrate for the mass treatment of populations in endemic areas. In the Kasulu trials the drug eliminated both adult and immature worms; it is not known whether it has any action upon embryonic forms in the tissues. It is therefore possible that a person harbouring embryonic forms might show a return of eggs in the stool eight weeks after elimination of the gut forms, and a second treatment would be necessary. Also, in an endemic area the problem of reinfection would arise. Ascaris eggs will survive for several months in a desiccated condition and remain a possible source of infection even if the population has ceased to pass fresh eggs. For the eradication of a focus of infection it would be advisable to treat the whole population at monthly intervals for at least four months.

Summary

Piperazine citrate ("antepar") was effective in removing roundworm from the gut when given in a single dose.

The results indicate that a dose of 3 g. should be given to all except children weighing less than 20 kg.; small children should be given 2 g.

No toxic side-effects were observed.

The worms were narcotized by the drug and not killed; they recovered in a few hours when placed in Ringer's solution at 37° C.

No effect was observed against hookworm or *Strongyloides*.

We are greatly indebted to Sister Margaret, Medical Sisters of Mary Mission Hospital, Kabanga, for her co-operation in these trials. We acknowledge the help given to us by Colonel W. M. Laurie and the staff of the East African Medical Survey, whose guests we were, and by the staff of the Tanganyika Medical Service, especially Dr. A. G. Farr, Acting A.D.M.S., Lake Province, and Mr. Morton, African Medical Assistant at Kasulu Hospital.

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TWO CASES OF FULMINATING PNEUMONIA IN PATIENTS ON HORMONE THERAPY

BY

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Many articles have appeared in recent months on the uses of A.C.T.H. and cortisone in the treatment of various acute and chronic diseases. Little emphasis has been laid on the practical results of the well-known disseminating qualities of these drugs on occult infections.

Leading articles in the *British Medical Journal* (1954) and *Lancet* (1951) have drawn attention to this disconcerting quality and discussed at length its theoretical causation. In the latter article it was queried: "In treating the pale rheumatic child with some disorder of his antibody responses, shall we gain only a fit-looking child with no defences against infection, who makes his symptomless way to death from septicaemia?"

It is with attention to the word symptomless that I would like to report two cases of unexpected death and discuss their practical implication.

Case 1

A housewife aged 65 was admitted with an acute generalized exacerbation of her rheumatoid arthritis precipitated by purulent rhinorrhoea and sinusitis. On admission she had cardiac failure, pyrexia, generalized swelling, and joint pain, and was unable to sit up in bed by herself. She had lost about 1½ st. (9.5 kg.) in weight in the past three months. Her E.S.R. (Westergren) was 110 mm. in one hour, haemoglobin 52%, and B.P. 160/90. She ran a stormy course of remissions and exacerbations, eventually being discharged to a convalescent home eight months after admission.

During her stay in hospital she was at first given 50 mg. of cortisone daily, combined with a short course of penicillin and digoxin. In two months she had improved to a degree where a reduction in the dose of cortisone to 37.5 mg. daily was reasonable. However, she rapidly had a further exacerbation of her symptoms, which failed to settle on a dose of 75 mg. of cortisone daily. It was decided that the cortisone should be replaced by A.C.T.H. She was started on 60 mg. of A.C.T.H. daily in October, on which she improved quite rapidly, enabling us to reduce the dose to 20 mg. of A.C.T.H. gel daily within a fortnight. Steady improvement was maintained, and therapy was discontinued. Within a week she had a further exacerbation of her rheumatoid arthritis and purulent rhinorrhoea which necessitated another course of penicillin, combined with 100 mg. of cortisone daily. Her symptoms gradually improved, and a reduction to 75 mg. of cortisone daily was possible. It was found, however, that any further reduction in cortisone resulted in an immediate exacerbation. She was discharged in February, 1954, to continue taking 75 mg. of cortisone daily. At this time she was able to walk with the aid of two sticks and had gained 14 lb. (6.4 kg.) in weight.

During her stay in hospital she had three short courses of penicillin, and two courses of intravenous iron and cortisone and A.C.T.H.

She was seen in the out-patient department a month after discharge and appeared very well, having no joint pains and being able to walk unaided. She was sent home to continue taking 75 mg. of cortisone daily. At this time her E.S.R. was 26 mm. and haemoglobin 80%.

Three weeks later she died in her sleep, having been normally active throughout the day and making no complaint whatsoever. Her brother said that a few days previously she had been better than she had been for years, being more active and able to get about her housework with more ease.

Post-mortem Findings.—Macroscopically there was a bilateral hydrothorax of approximately 2–3 pints (1,140–1,700 ml.) with a bilateral early confluent basal bronchopneumonia. The heart musculature was thin and of poor texture. The pericardium was adherent anteriorly. The liver showed passive congestion. The kidneys appeared normal. There were typical rheumatoid arthritic joint changes. The suprarenals were normal (right 5 g., left 5.5 g.). The pituitary was normal (weight 0.9 g.). Histological examination showed that the suprarenals and pituitary were normal for her age. The myocardium showed mild toxic myocarditis. The liver showed cloudy swelling with an increase of red cells in the portal tract. The kidneys were normal. The sternal marrow was of normal cellularity and the thyroid gland showed normal activity, with small lymphoid accumulations. The lung was not examined histologically.

Case 2

An electrical engineer aged 55 was readmitted in early January, 1954, because of gradual deterioration of his rheumatoid arthritis whilst on 400 mg. of phenylbutazone daily, which he had been taking for about a year. He complained of pain in all his joints, especially the right elbow and both shoulders. The E.S.R. (Westergren) was 12 mm. in one hour; haemoglobin, 95%; W.B.C., 13,400 (polymorphs 84%, lymphocytes 9%, monocytes 7%). The same dose of phenylbutazone was continued together with a short course of A.C.T.H., beginning with 20 mg. gel daily, which was reduced to 10 mg. daily twelve days later. Four days after this he complained of difficulty in respiration, due to inspiratory stridor, which failed to respond immediately to subcutaneous adrenaline. He was given 50 mg. of crystalline A.C.T.H. intramuscularly, this being repeated twice in the next forty-eight hours, by which time the attack had abated. He was given a short course of penicillin because his throat swab revealed haemolytic streptococci, not Lancefield group A or O. The E.N.T. opinion queried chronic inflammatory laryngitis secondary to crico-arytenoid arthritis. The phenylbutazone was discontinued and 10 mg. of A.C.T.H. gel daily was continued for a further fourteen days, in which time he greatly improved and his joints were much easier. On withdrawal of A.C.T.H. he had a mild flare-up of his symptoms, which were brought easily under control by regular aspirin. He was discharged in the latter part of February.

In the latter part of April he had an acute flare-up of all his joints and was admitted to a nursing-home, where he was put on 20 mg. of A.C.T.H. gel daily. Seven days later he was symptom-free and feeling so much better that he was planning his return to work. That evening he went to sleep at a normal time but awoke in the early hours of the morning, short of breath, and died within six hours.

Post-mortem Findings.—Macroscopically the left pleural cavity contained dense pleural adhesions along the anterior margin of the lung due to a fibro-purulent exudate from a fairly recent pleurisy; there was some free fluid present. The right pleural cavity was obliterated by dense adhesions, but there was no free fluid. The right lung was oedematous. The left lung showed congestion and oedema of the lower lobe. The upper lobe was totally consolidated and in a state of grey hepatization. The pharynx and larynx were both healthy and normal. There was moderate enlargement of two mediastinal glands. Both the kidneys were congested. The heart muscle appeared to be normal, but there was a finely patent foramen ovale in the interatrial septum. *Histology*:—Lungs: the presence of acute pneumonia was confirmed, a purulent exudate filling the alveoli; the left lung was in a stage of grey hepatization. Heart: slight coronary atheroma; nothing else abnormal. Liver: moderate fatty

change and evidence of chronic venous congestion. Kidney: evidence of toxaemia, with cloudy swelling of tubular epithelium. Spleen: congestion of sinusoids; Malpighian corpuscles were small, with relative deficiency of lymphocytes. Hilar lymph nodes: reactive hyperplasia and evidence of early pyogenic infection. The suprarenals were normal (right 6.6 g., left 6.7 g.). The pituitary was also normal.

Two similar cases are mentioned in the 1953 annual report of the rheumatological department of the Royal Free Hospital. These were both on long-term cortisone; they remained symptomless until they became explosively ill, and in spite of treatment died a few hours later. These cases will be reported fully in due course.

Comment

The two cases reported display the well-known masking qualities of A.C.T.H. and cortisone over severe bacterial infections. In the light of experimental knowledge of dissemination of infection by these drugs, the second case is of interest because of the short duration of A.C.T.H. treatment and also the low dosage of drug given—20 mg. of gel daily. The absence of gross histological change in the adrenal and pituitary glands, using only routine staining methods, is noted.

The practical implication of patients on long-term cortisone is of most concern to the general practitioner, on whom the ultimate supervision of the patient's health depends. Although the incidence of pneumonia in patients on long-term cortisone is relatively low, its occurrence is, in our limited experience, grave and exceedingly difficult to diagnose early enough for treatment to be satisfactory.

The problem of diagnosis can at this stage only rest upon constant clinical examination at relatively short intervals, at the most a week.

The problem of treatment and general management is as yet unresolved, for in the light of present knowledge it would seem justifiable to institute antibiotic therapy at the earliest symptoms or sign of infection.

Summary

Two cases of fulminating pneumonia in patients undergoing hormone therapy for the control of an exacerbation of rheumatoid arthritis are described.

Both cases display the well-known masking effect of cortisone and A.C.T.H. over severe bacterial infection.

In the first case death occurred during prolonged cortisone therapy. In the second case death occurred a week after commencement of A.C.T.H. therapy.

The problem of diagnosis and treatment is discussed.

I am indebted to Dr. G. D. Kersley for his help and advice in preparing this record and for allowing me to report these two cases; also to Dr. H. J. Gibson for furnishing the post-mortem and histological reports.

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In his Annual Report for 1953 Dr. Kenneth Fraser, county medical officer of Cumberland, describes a survey of all the spastic children in the county. Fourteen of these were being educated at primary schools, three were classified as ineducable, four were in special schools, and four were being considered for admission to special schools. Of the children under 5 years of age, only three were discovered with a serious degree of spasticity. Eight children in all were classified as being seriously disabled owing to spasticity, and three of these had been affected by erythroblastosis foetalis. Dr. Fraser, commenting on the importance of performing blood tests on expectant mothers, adds: "I hope the significance of this will not be overlooked by those concerned."

Medical Memoranda

Intussusception at 70 Hours

I would like to record this case as that of one of the youngest babies to have an intussusception. It is of interest in demonstrating some of the odd symptoms one may encounter when dealing with cases of intestinal obstruction of the newborn.

CASE REPORT

The patient, a male child of healthy parents, was normally delivered. His blood group was A Rh-positive and the W.R. negative. At birth he was quite active and appeared to be normal. There was some bruising of both feet and one hand that was not due to trauma. Thirty hours after birth a dark stool of meconium plus melaena was passed, as were similar stools at 48 hours. At this period he sucked vigorously, but regurgitated green fluid. A tentative diagnosis of haemorrhagic disease of the newborn was made and 10 mg. of "synkavit" was given. At 58 hours he had another melaena stool and vomited some green fluid, and his general condition began to deteriorate.

He was admitted to the Newcastle-upon-Tyne Babies Hospital at 60 hours and was found to have petechial haemorrhages of the trunk, face, hands, and feet. He was observed for two hours, and during this period he vomited bile-stained fluid and his general condition became much worse. He was therefore transferred to the children's department of the Newcastle-upon-Tyne General Hospital as a possible case of duodenal atresia. He was then 66 hours old, weighed 6 lb. (2.7 kg.), and had a haemoglobin of 88%. He was dehydrated and pale. He had small subcutaneous haemorrhages on the face and bruising of the hands and feet. He continued to vomit greenish fluid. The upper abdomen was distended and no mass could be felt.

An *x*-ray film was taken, and the radiologist reported: "There was no gas distal to the first part of the duodenum, indicating a complete obstruction. Barium enema showed a normal colon and excluded malrotation. The lesion is most likely to be an atresia."

In view of this a provisional diagnosis of duodenal atresia and haemorrhagic disease of the newborn was made, and he was prepared for operation. A blood transfusion was started and gastric aspiration was carried out. At this stage he passed three small stools of fresh blood.

At 77 hours I operated. The abdomen was opened through a right paramedian incision. On opening the peritoneal cavity it was immediately obvious that one was dealing with a high intussusception. Examination showed it to begin about 10 in. (25 cm.) from the duodeno-jejunal junction and to be about 12 in. (30 cm.) long. Reduction was started in the usual manner, but the emerging bowel was seen to be gangrenous and the intussuscipiens began to split. I resected the affected bowel, closed both ends, and did a side-to-side anastomosis, using No. 000 catgut throughout. The baby stood the operation well and made an uneventful recovery.

The post-operative regime was as follows. Gastric aspiration was done hourly and the I.V. drip was continued. Twenty-four hours after operation feeds of 2 dr. (7 ml.) of sterile water were given every two hours, aspiration being carried out before the feed. Glucose water was given in gradually increasing amounts for 48 hours until 96 hours after the operation, when the amount being aspirated was less than the amount taken. A stool containing bile was passed at 72 hours. Gastric aspiration was continued at lengthening intervals until seven days after the operation, when only 2 oz. (57 ml.) had been aspirated in the previous 12 hours. He had full-strength half-cream milk from the fifth day and was on to three-hourly feeds after six days. Penicillin and streptomycin were given for ten days.

He was discharged from hospital on the twelfth day. His weight was 6 lb. 12 oz. (3.1 kg.). The wound was soundly healed. When I saw him a month after his operation he was quite fit and well.

The specimen was reported on by the pathologist: "A piece of extremely haemorrhagic small intestine 18 cm. in length, with the remains of an intussusception at one end. Histology of the remains of the intussusception reveals complete gangrene of intussusception with much haemorrhage. Remainder of bowel wall showed severe oedema and much submucous and mucosal haemorrhage."

COMMENT

The interesting features of the case are the association of haemorrhagic disease of the newborn with an intussusception. One may speculate whether the former was the cause of the latter and whether the actual onset of the intussusception had occurred *in utero*.

Having done a number of resections in older infants, I am convinced that the most satisfactory result is obtained (when resection of the bowel is required) by immediate side-to-side anastomosis. Especially is this so when the gangrenous bowel is small intestine, as is usually the case. The extra time necessary to complete the anastomosis is negligible, and the baby is spared the risks of a fistula and a second operation.

Nurses skilled and experienced in this type of work are a *sine qua non*, and I must record my thanks to the excellent nursing of the baby at the Newcastle-upon-Tyne General Hospital.

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Carcinoma of Body of Uterus Found on Endometrial Biopsy

Endometrial biopsy is used as a diagnostic procedure in the study of infertility to obtain evidence of ovulation by the demonstration of secretory activity of the endometrium. Only a small fragment of tissue is obtained, but the investigation can be carried out in the out-patient department without an anaesthetic—a great advantage over a full curettage.

During the past two years 489 endometrial biopsies have been carried out, and in two cases the presence of an unsuspected carcinoma of the body of the uterus was revealed. In both cases the patient attended the fertility clinic complaining only of her failure to conceive and had no symptoms suggestive of malignant disease. Although tuberculous endometritis is found in about 2 to 5% of infertile patients with no other complaint, there has been little reference to the accidental discovery of an endometrial carcinoma.

These cases are worth recording, since carcinoma of the body of the uterus is usually associated with post-menopausal bleeding or irregular vaginal bleeding about the time of the menopause.

CASE 1

The patient, aged 41, had been married for only one year and was anxious to become pregnant. Her menstrual cycle was regular, three days' loss every twenty-eight days; she had no intermenstrual bleeding, but noticed a vaginal discharge. She had suffered from mild rheumatoid arthritis for ten years, but otherwise her general health was good. She had had no other serious illnesses or operations and no previous pregnancies.

On general examination no abnormality was found apart from rheumatoid arthritis of the hands, wrists, and feet. On pelvic examination the only abnormality found was a cervical erosion; the uterus was anteverted, mobile, and of normal size. The erosion was treated, and a hysterosalpingogram was carried out in November, 1950. This showed that both tubes were patent and the cavity of the uterus appeared to be normal. The patient attended the clinic at irregular intervals, and the first endometrial biopsy was taken in July, 1951, eight months after the salpingogram. The result of this biopsy was surprising, for it showed fragments of an adenocarcinoma of the body of the uterus. On closer questioning after admission she said that she had noticed very slight vaginal bleeding after each examination at the clinic, but had paid no attention to it.

A preliminary dilatation and curettage was performed which produced a small quantity of necrotic friable malignant tissue. The cervix was sutured and total hysterectomy and bilateral salpingo-oophorectomy were carried out at once. At operation the pelvic organs looked quite normal. On opening the uterus afterwards, a small papilliferous area about the size of a pea was found near the left cornu, and it was obviously by chance that a piece of the growth had been included in the endometrial biopsy. Section of the uterus showed a well-differentiated adenocarcinoma with very little invasion of the myometrium. No secondaries were found in the ovaries.

The patient has been followed up regularly since the operation and there is no evidence of recurrence.

CASE 2

This patient was only 28 years old, and first attended the fertility clinic in September, 1952. She had been married for nine years without using contraceptives and had not become pregnant. She had no complaints other than infertility. Her menstrual cycle was regular, four or five days' loss every twenty-eight days, and she had no intermenstrual bleeding or discharge. She had had no serious illnesses or operations, but had been investigated at another hospital for infertility in 1946 and was told that her tubes were patent.

The patient was a healthy-looking young woman and no abnormality was found on general or pelvic examination. There was no abnormal vaginal discharge, the cervix was healthy, and the uterus was of normal size, anteverted, and mobile. Insufflation was carried out at her first attendance and the tubes were found to be patent. Six weeks later an endometrial biopsy was carried out on the twenty-fifth day of the cycle, and examination of this biopsy material showed a well-differentiated adenocarcinoma of the body of the uterus. Some persuasion was necessary before she would consent to come into hospital. Her object in attending the clinic was to start a family, and it seemed strange that we should seek permission for a hysterectomy so soon after her first attendance.

A preliminary curettage produced necrotic friable malignant tissue which left no doubt about the diagnosis. The cervix was sutured and total hysterectomy, with removal of the appendages, was carried out at once. Again the pelvic organs appeared normal at operation. However, on opening the uterus after it had been removed, an extensive carcinoma encircling the uterine cavity was found. Almost any endometrial biopsy would have been certain to include some of the growth. Section showed a moderately well differentiated adenocarcinoma with some penetration of the myometrium. No secondary deposits were found in the ovaries. A course of deep *x*-ray therapy was given post-operatively to the pelvis and the patient has remained well so far.

COMMENT

It is not suggested that the endometrial carcinoma was the primary factor in the infertility of either of these cases. The first patient had reached a comparatively infertile age, while the second patient could hardly have had a carcinoma present for the nine years of her marriage. However, the accidental discovery of these malignant conditions leads to conjecture upon the length of time that an endometrial carcinoma may be present without producing abnormal vaginal bleeding.

In addition to these cases, in 1950 another patient complaining only of infertility with no intermenstrual bleeding or discharge was found to have a carcinoma of the cervix on routine examination. Thus one case with malignant disease has been found at the fertility clinic of the Royal Free Hospital in each year for the past three years.

We wish to thank Miss Gladys Hill for permission to publish these cases.

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Renal Failure in Meningococcal Meningitis

We feel that because of the extreme rarity of death from renal failure in meningococcal meningitis, and because of its other unusual features, the following case merits publication.

CASE REPORT

A youth aged 18 was admitted on January 29, 1953, with a history of headache, vomiting, and fever for five days; complete deafness, intermittent delirium, and unconsciousness for four days; and haematuria for three days.

On admission his temperature was 100.6° F. (38.1° C.), pulse 144, and respirations 22. No rash was present. There was marked neck rigidity with a positive Kernig sign. All the tendon reflexes were exaggerated and the plantar responses flexor. The blood pressure was 154/90. The tongue was dry and furred, but the breath was odourless. He was tender in both loins. Lumbar puncture revealed a turbid fluid containing 750 mg. of protein with many polymorphs, and direct examination and culture yielded *Neisseria meningitidis*.

His urine could not be tested, as he was incontinent, so 3 g. of sulphadiazine was given by mouth, followed by 1.5 g. four-hourly to a total of 7.5 g. It was then stopped because catheterization yielded about 2 oz. (57 ml.) of urine containing many red cells and much protein, but no sulphonamide crystals. At his first lumbar puncture he was given 20,000 units of penicillin intrathecally, and thereafter 15,000 units daily by the same route. He was also given 500,000 units of penicillin six-hourly by intramuscular injection.

His pulse and temperature returned to normal on February 2, and there were no clinical signs of meningitis next day. The meningococci in the C.S.F. were fully penicillin-sensitive and were not found in stained films or on culture after January 31. As he passed only 4½ oz. (128 ml.) of urine on January 30 he was given the "Hammersmith cocktail" (Bull *et al.*, 1949), consisting of 100 ml. of peanut oil and 400 g. of glucose in 1 litre of fluid (making up 2,500 calories) by daily intragastric drip. A diuresis began on February 2 (see Table I).

TABLE I.—*Urine Analyses*

Date	Daily Volume of Urine (oz.)	Total Excretion per Day (g.)			
		Potassium	Sodium	Chlorides	Urea
29/1/53	Nil				
30/1/53	4½*				
31/1/53	?				
1/2/53	1*				
2/2/53	14	0·39	0·59	0·84	8·2
3/2/53	15	0·51	0·62	1·12	9·0
4/2/53	26	0·95	1·03	1·56	18·7
5/2/53	27				

* Indicates incontinence of urine.

He had proteinuria with numerous red cells and occasional granular casts most of the time. Sulphonamide crystals were never found in the urine. The biochemistry of the blood is shown in Table II.

TABLE II.—*Blood Biochemistry*

Date	Plasma Alkali Reserve (Vols. CO_2/100 ml.)	Mg. per 100 ml.			
		Blood Urea	Serum Sodium	Serum Potassium	Serum Chlorides
30/1/53	12·5	250			
31/1/53	28	400	319	21·6	610
2/2/53	27	450	338	25	615
5/2/53		500	345	28·5	635

On February 5 he lapsed slowly into coma, and his blood pressure fell from slightly above normal to 38/20 despite intravenous "eucortone" and intramuscular deoxycortone acetate. He died that afternoon.

Post-mortem Examination.—The significant findings were enlargement of the kidneys (right 220 g., left 135 g.), which were oedematous and intensely congested, especially in the cortex. Microscopically the glomeruli were normal but the tubules showed haemorrhage. The distal convoluted tubules were degenerated and the lumen was blocked with coagulated protein material. Areas of the kidney showed leucocytic infiltration. The brain showed some yellow gelatinous exudate round the optic chiasma, but was microscopically normal. Fluid from the left lateral ventricle contained *N. meningitidis*.

COMMENT

In 1948 Banks described a series of 706 cases of meningococcosis but no cases of nephrosis. The one case of renal failure recorded since the introduction of sulphonamide therapy occurred in a patient with the Waterhouse–Friderichsen syndrome (Faloon *et al.*, 1950), who died from an acute glomerular nephritis, whereas our patient died from a lower nephron syndrome. Fairley and Stewart (1916) mention that haematuria occurred in 2 or 3 out of 323 cases of cerebrospinal fever. Worster-Drought and Kennedy (1919) describe one case of haematuria out of 70, and two in which nephritis was probably a direct complication. Nattan-Larrier and Crouzon (1906), McCaskey (1912), Roberts and Ford (1915), and Wallgren (1920) have also pointed out the difficulty in differential diagnosis between epidemic meningitis and uraemia at times.

Haematuria occurred early in our case—indeed, before the meningitis was evident. Biochemical examination showed that, despite treatment (Bull *et al.*, 1949) during which the output of urine and electrolytes increased, the blood urea rose steadily, and the acidosis persisted.

In lower nephron nephrosis the main threats to life (Snapper, 1952) are hyperpotassaemia—symptoms of which may occur at concentrations above 27.2 mg. (Tarail, 1948)—and acidosis, and it was presumably the combination of these factors that caused our patient's death.

Our thanks are due to Dr. K. Randall, who carried out the post-mortem examination, to Dr. T. McKendrick, our house-physician, and to Dr. H. Stanley Banks for his advice.

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Reviews

MAGNUM OPUS

Textbook of Ophthalmology — Volume VI Injuries. (Pp. 1,159; 1,145 illustrations, 144 in colour. £5 5s.) *Volume VII Summary of Systemic Ophthalmology. General Index.* (Pp. 244. 25s.) By Sir Stewart Duke-Elder, K.C.V.O., M.A., LL.D., D.Sc.(St. And.), Ph.D.(Lond.), M.D., F.R.C.S., Hon.D.Sc.(Northwestern), M.D.(Dublin), D.M.(Utrecht, Strasbourg), F.R.C.S.(Edin.), F.A.C.S. London: Henry Kimpton. 1954.

The author's conception, industry, and tenacity in fulfilling his purpose of writing this excellent textbook merits the highest praise. This book, now composed of 7 volumes, of which the sixth and others are over 1,000 pages each, has necessitated in its production an immense review of the literature, from which every paper of importance is listed in the bibliography.

Such a formidable task has never been undertaken by a contemporary author. On the Continent comparable works have been achieved in French and German by teams of authors, each member contributing either one or several chapters, so it is indeed a matter for national pride that a medical author from Great Britain should have accomplished so admirably this enduring literary feat. Sir Stewart Duke-Elder's achievement is all the more remarkable in that this work has been so well done despite the current demands of organizing research work, the conduct of a large practice, and many committee labours. Indeed, Volume 6, like the other volumes, is enriched in its practical value and the liveliness of its presentation by the fact that the author is simultaneously engaged in both research and clinical practice. Textbooks which are the work of several authors are so frequently spoiled by discordant literary styles and overlapping.

Volume 6 is exemplary for its lucid and facile writing and for the perfect editorial control of one man. The illustrations, well chosen from many sources in the literature, are beautifully produced and arranged. The prologue to some chapters is enlivened by a brief historical commentary mingled with a charming salute and tribute to some famous ophthalmologist of the past. The subject of eye injuries has been most exhaustively covered, including such modern sources of trauma as ultrasonic vibrations, ionizing radiational injuries, the effects of an atomic bomb explosion, and aviation stress injuries caused by vibration, acceleration, and atmospheric changes.

Criticisms of such a work as Volume 6 are indeed quite trivial. The author rightly advises against lid retraction by a speculum when extracting an intraocular foreign body; yet the illustrations of this operation, borrowed from Kraus and Briggs and from Philps, show the use of a speculum. For the extraction of a non-magnetic foreign body lodged in the filtration angle the author recommends a keratome section passed obliquely from the anterior surface of the cornea a few millimetres central to the limbus and directed posteriorly to the filtration angle. It is probable that by this technique either an inadequate incision would be made or the point of the keratome would become engaged in the ciliary body. Such an incision made with Desmarre's knife would be safer and more effective. Traumatic myopia is discussed, but no special comment is made on transitory unilateral axial myopia the result of blast from the explosion of war missiles and land-mines.

The seventh volume provides a summary of systemic ophthalmology and a general index. In a "postscript" to it Sir Stewart points out that the preface to this textbook was written about a quarter of a century ago. With this, the last volume of a veritable *magnum opus,* he considers it "the better part to return to the first volume and seek to remedy its present shortcomings by adding to it the progress made during the last quarter of a century." This he admirably does, thus bringing to completion a great contribution to ophthalmic literature.

H. B. STALLARD.

INTO GENERAL PRACTICE

Into General Practice: A Guide for the Beginner and Others. By J. G. Thwaites, M.B., B.S. (Pp. 223+viii. 12s. 6d.) London: William Heinemann (Medical Books) Ltd. 1954.

It might be thought that general practice had suffered from a surfeit of authors, but Dr. Thwaites has several important things to say. As one who has spent 20 years in practice he realizes the interest and excitement of living with the story of his patients—unlike the consultant, who often only takes the history. His ideals for the general practitioner are formidably high, and the wonder is not that some of us fall short but that so many of our colleagues attain the summit. He has a scrupulous and orderly mind, and gives sound advice about the organization of a practice and the obligations of a general practitioner under the National Health Service. For instance, he advises "that a patient should be clearly told that he can either be private if he wishes or he can come under the Health Service; he is free to be one or the other as he pleases, but he cannot be both at the same time." Advocates of prescribing on E.C.10 for private patients please note!

Professional relationships, medical ethics, and medico-legal aspects of practice occupy a large part of this book. As a past chairman of the Ethical Committee of the B.M.A., Dr. Thwaites writes with an authority that deserves the closest attention of general practitioners and others. If the dangers of lax certification were fully understood there would be fewer complaints about practitioners brought before medical services committees. Dr. Thwaites prints the General Medical Council's "Warning Notice" on advertising. If doctors of all kinds realized that the practice of openly depreciating the professional skill, knowledge, services, or qualifications of other doctors is, in the opinion of the Council, discreditable to the profession and may render them liable to have their names erased from the *Medical Register,* there might be less of this disgraceful behaviour both in hospitals and in practice. There would also be less litigation. No layman can hope to win his case without the active support of a doctor. That support almost certainly starts by one doctor depreciating the services of a colleague in the hearing of a patient.

Dr. Thwaites reminds those who have to appear in court and give evidence on oath that they are not required to take sides but only to tell the truth as they see it without fear or favour. He bases his ethical code firmly on the Hippocratic Oath. He is extremely strict about the professional ethical rules between doctors in practice, and clearly shows that what is permitted by regulation is not necessarily ethical. Certainly it is not easy to reconcile ethical codes, regulations, and free choice with common sense. There is no space to argue with Dr. Thwaites here, but there is no doubt this book should be read by those who value the honour of our profession.

C. W. WALKER.

CONYBEARE'S MEDICINE

Textbook of Medicine. By Various Authors. Edited by Sir John Conybeare, K.B.E., M.C., D.M.(Oxon), F.R.C.P., and W. N. Mann, M.D.(Lond.), F.R.C.P. Eleventh edition. (Pp. 905+xvi; illustrated. 37s. 6d.) Edinburgh and London: E. and S. Livingstone Ltd. 1954.

This book has flourished for 25 years without beginning to look old-fashioned, and it is now one of the most popular textbooks of medicine with students and teachers. It is comprehensive and includes tropical diseases and psychological medicine as well as the common diseases of the skin. It is a pleasant book to handle and read and is sold at a reasonable figure, and, although it runs to over 900 pages, it is difficult to see how it could be made shorter, some of the sections having already been cut to the bone. It should be noted, however, that mucomembranous colitis, which is described fully, has become exceedingly rare, and few haematologists nowadays would treat polycythaemia with phenylhydrazine or Hodgkin's disease with arsenic. Considerable revision has occurred in the articles on psychological medicine, endocrine disorders, and heart disease.

There is a new and clear account of the pathology of the intervertebral disks, but rather too little clinical application of the information, so that few students would realize from this section that recent work on cervical spondylosis has been regarded by some neurologists as the biggest advance in their subject since the recognition of the aneurysms of the circle of Willis. To use the inner pages of the covers for tables and normal data is ingenious; the use of milligrams instead of milli-equivalents may not please the purists, but the difficulty of having in a single table electrolytes in milli-equivalents, blood sugar and urea in milligrams, and plasma proteins in grams per 100 ml. seems almost insuperable.

With this eleventh edition Sir John Conybeare and Dr. Mann have every prospect of maintaining the lead which they have established in this field.

L. J. WITTS.

ENDOCRINOLOGY

Recent Advances in Endocrinology. By P. M. F. Bishop, D.M.(Oxon), M.R.C.P.(Lond.). Seventh edition. (Pp. 348+viii; 34 illustrations. 30s.) London: J. and A. Churchill, Ltd. 1954.

This invaluable book was first published in 1933 under the authorship of the late Professor A. T. Cameron, a Canadian biochemist. Dr. Bishop has undertaken the seventh edition in 1954 with considerable success. He indicates in the introduction that he does so as a clinician, but we have only to open the first chapter on the adrenocortical steroids to realize that his background is also physiology and biochemistry and that he is no stranger to the experimental laboratory. The review of recent advances in the space of some 300 pages of moderate size could only have been carried out in the manner the author has chosen—namely, to be selective.

In the chapter on Cushing's syndrome he records the results of unilateral adrenalectomy in four patients and of bilateral adrenalectomy in five. The considerable remission of symptoms in three of the first four patients is somewhat of a surprise to the reviewer and is difficult to account for theoretically. In the chapter on hermaphroditism, pseudo-hermaphroditism, and macrogenitosomia praecox, the pioneer work of Lawson Wilkins, of the Johns Hopkins, in the investigation and control of some of these patients is ably reviewed. Various forms of constitutional precocious puberty are considered in Chapter V, and authors are quoted as giving different names to the types in which particular functions are precocious—for example, "phelarche" for the breasts and "pubarche" for pubic hair—the problem of hypersensitive tissue response or of excess of hormone stimulus being discussed. The whole problem of hirsutism in children is a fascinating one and throws light on the condition in adults. The section on "simple hirsutism" shows some of the difficulties of classification. Bishop describes it as "a functional rather than an organic disorder." He, however, considers the title to be also applicable in the presence of acne, small breasts, and infrequent scanty menstruation. This seems to approach the picture of an adrenogenital syndrome, and the term "simple hirsutism" might be more appropriately reserved for cases where hirsutism is the only feature. However, transitional cases are not infrequent, and all we can be sure of is that "simple hirsutism" is by no means simple.

The chapter on an analytical examination of testicular deficiencies, including such complicated subgroups as Klinefelter's syndrome and the Heller–Nelson syndrome, will be greatly appreciated by workers in this field. Feminization in men with adrenal oestrogenic hyperfunction and the Stein–Levanthal syndrome in women with hyperthecosis of the ovary are also usefully discussed, together with hormone assays. A short practical chapter on the clinical use of oestrogens reflects the author's wide and long experience in this field and his pragmatic approach.

Time flies so quickly that the discussion on the advantages and disadvantages of antithyroid drugs such as methylthiouracil seems to belong to a past era, but it nevertheless constitutes a useful review; and the concluding section on radioactive iodine is very welcome and informative, though somewhat too brief. The only query I would venture to make is whether the therapeutic use of A.C.T.H. and cortisone in non-endocrine conditions should be considered in a volume dealing primarily with endocrinology. The justification for the inclusion is that many people would answer in the affirmative.

In summary, Dr. Bishop brings to his onerous task a directness of vision and a capacity for selecting fundamentals that assure the success of this edition, although the critical may find it oversimplified.

S. L. SIMPSON.

INDUSTRIAL NURSING

The Birth of Industrial Nursing. By Irene H. Charley, S.R.N., S.C.M., H.V.Cert. Foreword by A. A. Woodman, M.B.E., S.R.N., S.C.M., H.V.Cert. (Pp. 224+ii; illustrated. 10s. 6d.) London: Baillière, Tindall and Cox. 1954.

The first half of this book consists of an excellent account of the early beginnings and subsequent development not only of industrial nursing but of nursing generally in relation to the social effects of the industrial revolution and after. Miss Charley, a distinguished and gifted public-health nurse, has dug deeply into history, and the publication here of many early quotations and references represents some of the valued fruits of her labours. For example, there is a quotation from Bernardino Ramazzini, who was born in 1633: "The worst profit is that which is gained in destroying health, the most precious of all goods"—a truth the full realization of which is as necessary now as on the day when it was written. The remainder of the book deals comprehensively with recent advances in industrial nursing.

Throughout the book there is a reiteration of sound themes: industrial nursing is a branch of the public-health nursing service; the need for unity within the nursing profession; the necessity for full co-ordination of all health services. In her preface the author quotes appropriately a passage from Ecclesiasticus, and in doing so states that the Apocrypha was written in the first half of the second century B.C. Ecclesiasticus was written about that time, but the apocryphal books, according to several ecclesiastical authorities, were written between about 250 B.C. and the early Christian centuries. Incidentally, while many people accept Miss Charley's view that Ecclesiasticus is apocryphal, many deny it firmly. This trivial slip is the only error found in the book—evidence of its high standard of accuracy.

This publication will appeal to members of the nursing profession and to many in other spheres.

C. METCALFE BROWN.

DISEASES OF THE VULVA

Diseases Affecting the Vulva. By Elizabeth Hunt, M.D., Ch.B. Fourth edition. (Pp. 236; 47 illustrations, 17 coloured plates. 31s. 6d.) London: Henry Kimpton. 1954.

We welcome the fourth edition of this study of the dermatological aspect of vulval disease with its many beautiful coloured plates. It has been brought up to date with recent work and there is a useful section on lichenification. In another new section there is a clear account of leukoplakia of the vulva, which in the strict and correct sense used by the author is a fairly rare condition. That leukoplakic vulvitis is always the same as lichen sclerosus, which the author says is a form of lichen planus, may not be accepted by all, but most dermatologists will agree about the importance of the second of these conditions; and if gynaecologists do not agree, they ought to do so.

The book is one which should be read critically by all dermatologists and gynaecologists. It also contains much helpful and practical advice for the general practitioner.

F. F. HELLIER.

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AIR POLLUTION

The welcome given by the national and local press to the long-awaited report[1] of the Committee on Air Pollution—the committee of which Sir Hugh Beaver was chairman—has been remarkable in its enthusiasm, in contrast to the rather tepid reception given to the committee's interim report[2] which appeared about a year ago. The present report includes a mass of material not easily available elsewhere, while much of it is new. The most significant statement in it—that there should be a declaration of national policy to secure clean air—has commanded strong and unanimous support. The *Manchester Guardian*,[3] in its leading article on the subject, added the practical reminder that the report "embraces whole-heartedly the Churchillian maxim . . . that our admitted inability to do everything at once is not a valid excuse for doing nothing." There is certainly much to do. As Mr. Duncan Sandys, the Minister of Housing and Local Government, stated in the House of Commons last week, "The air around us is being persistently contaminated by all kinds of smoke, grit, dust and gases, emitted from domestic chimneys, factories, power stations, locomotives, ships, road vehicles, and other sources. It is not, therefore, surprising that the measures needed to tackle effectively this large and many-sided problem are necessarily complicated and costly and raise important issues of public policy."

The following are among the principal recommendations of the committee:

1. Subject to certain exceptions the emission of dark smoke from any chimney should be prohibited by law.

2. Efficient grit- and dust-arresting plant should be obligatory in certain large new industrial installations.

3. In those industrial processes where special technical difficulties exist, the responsibility for ensuring that the best practicable means of prevention should be vested in a central inspectorate (the "Alkali Inspectorate").

4. The most efficient practicable methods of removing sulphur from flue gases should be adopted at all new power stations in or near populated areas.

5. The law for the control of smoke from railways, and of pollution from colliery spoilbanks, should be brought up to date and strengthened. Responsibility for enforcement should rest with the local authorities.

6. Local authorities should have power . . . to establish (1) smokeless zones in which the emission of smoke from chimneys would be entirely prohibited, and (2) smoke control areas in which the use of bituminous coal for domestic purposes would be restricted.

7. Financial assistance should be provided by local authorities and by the Exchequer towards the costs incurred by house owners in converting appliances in smokeless zones and smoke control areas.

8. Domestic heating appliances installed in all new premises should be of approved types.

9. The present purchase tax of 50% on gas and electric room and water heaters should be removed.

10. General responsibility for enforcing the law for the prevention of smoke and grit should be placed as a statutory duty on the local authorities, which should be required to submit annual reports on their progress in smoke abatement to the appropriate Minister.

11. Penalties for smoke offences should be increased.

The committee advocates the extension of smokeless zones wherever conditions permit. Since complete smokelessness is not practicable in areas which include factories and power stations as well as houses, the report contemplates a second kind of area—a "smoke control area"—which would be much larger, and in which, concurrently with measures proposed to reduce industrial smoke, householders would be required to use only smokeless fuels. Smokeless zones and smoke control areas should be extended progressively throughout the "black" areas where many millions of people live and where some 19 million tons a year of raw coal are now used domestically—that is, in those areas where fogs are likeliest, pollution is heaviest, and which are also large centres of population. Local authorities are recommended to make new housing estates smokeless by requiring the occupiers, as a condition of tenancy, to use only smokeless fuels in the appliances with which they are provided. This recommendation is based on the pioneer work in Bradford and Nottingham, where this tenancy condition has operated successfully. The development of smokeless zones and smoke control areas will entail radical changes in the burning of domestic fuel. Bituminous coal cannot be burnt in the usual domestic appliances without the emission of smoke, and there is stated to be no prospect of developing an open grate, or a stove to take its place, able to burn bituminous coal smokelessly. At the same time in many parts of the country open fires are likely to remain the usual means of heating houses for many years to come.

The recommendations of the committee are a challenge to the Government, to the local authorities (on

[1] *Report of the Committee on Air Pollution*, 1954, H.M.S.O., London. Price 2s. 6d.
[2] See *British Medical Journal*, 1953, **2**, 1332.
[3] *Manchester Guardian*, November 26.
[4] *British Medical Journal*, 1954, **2**, 457.
[5] Ibid., 1953, **2**, 521 and 585.

whom much responsibility is placed), to the public, and, not least, to the medical profession. It must be admitted that exact knowledge of the relationship between air pollution and health is meagre, and that nearly all the evidence offered against smoke and noxious gases as a cause of acute and chronic ill-health is suggestive rather than conclusive. Chronic bronchitis, for instance, though difficult to define clinically, is three to five times as common in general practice in polluted industrial towns as in more fortunate areas.

It is exactly fifty years ago that Des Voeux, a Kensington doctor, first coined the word "smog" in his pioneer efforts to educate the profession and the public in the evil results of the burning of raw coal. But though the effects of the London fog of December, 1952, which resulted in the deaths of some 4,000 people, were the subject of a recently published report by an expert committee[4] appointed by the Minister of Health, a careful review of all the evidence available enabled that committee to add only very little to previous knowledge. Why was that particular fog so exceptionally deadly in comparison with the ordinary fogs which possess nuisance value but are not correspondingly lethal? Many important measurements were not taken in the London smog disaster. In the future it will be particularly important to measure the sulphuric acid mist content, for experimental evidence in the U.S.A. incriminates this as a lethal factor in polluted air.

On the whole the Beaver report devotes little, perhaps too little, space to the health aspects of the air pollution problem, though the committee acknowledges the help it received from the British Medical Association, the Society of Medical Officers of Health, and allied bodies. The report wisely deals less with isolated incidents such as the London smog in 1952 than with persistent air pollution throughout the year and over wide and populous areas of the country. The death rates from pneumonia and bronchitis in 1952 in this country as in Scotland show a definite and consistent downward trend between the large centres of population and the rural areas. The report goes on to say, rightly cautious in view of Doll's[5] conclusions, that the comparative death rates for urban and rural areas generally suggest that pollution of the atmosphere may be a factor in the causation of cancer of the lung.

The committee recommends closer co-ordination of the work of doctors, chemists, and other scientific workers carrying out research on the subject. Clinicians, and in particular interested general practitioners as well as pathologists, should in selected areas have full opportunity "to investigate in careful detail the cause of illness or death the probable cause of which is air pollution." On the other hand, the committee is certainly right in its opinion that action for the reduction of air pollution need not and must not be held up while further research is done. Air pollution is the almost unchecked environmental evil of the age. Our knowledge and practice of the requirements of health in respect of food, water, and shelter are vastly in advance of those in respect of the air we breathe. This is the centenary year of Dr. John Snow's recommendation that the handle should be removed from the Broad Street pump—an action which decisively stopped further primary cases of cholera arising from the drinking of contaminated water, despite ignorance about the bacteriological cause of the disease—and the grammar of sanitary science, in Sir John Simon's phrase, must again acquire the imperative mood. Filth from chimneys, whether from a factory furnace or a household hearth, must be made to cease. The emission of over five million tons of the oxides of sulphur every year into the air we breathe is too much for any nation.

CORTISONE IN DERMATOLOGY

The general pattern of response to cortisone and corticotrophin (A.C.T.H.) is the same whatever the kind of disease from which the patient suffers. In effect they suppress symptoms and have no action on the underlying cause of the disease. If the cause is transient, then the symptoms may be controlled until its influence has disappeared; thus when treatment is stopped the patient remains free from trouble. But, if the cause of the disease persists, cessation of treatment will be rapidly followed by a return of symptoms, sometimes in a worse form than before the treatment began. In our opening pages this week we publish the first report of the Medical Research Council panel on the dermatological applications of A.C.T.H. and cortisone. It records their effect on various types of eczema and allied skin lesions, including Besnier's prurigo and exfoliative dermatitis. In such a variable condition as eczema it is difficult to separate the true effect of a specific treatment from such influences as admission to hospital or the encouragement of having a new and much advertised form of therapy. (This stimulus, incidentally, is becoming less important as patients and staff become rather disillusioned about this new "wonder drug.") The response of individual patients to hospital treatment also varies so much that it is difficult to obtain

a suitable group of controls. In this investigation, therefore, each patient was used as his own control; he was put on and off treatment for alternating periods, usually of from two to three weeks. In a few instances dummy tablets were given during the no-treatment period.

The immediate response in eczematous reactions, whether of constitutional or exogenous type, was almost always good and sometimes dramatic. Within a few days irritation, weeping, and scaling greatly diminished or disappeared, though lichenification responded more slowly and less completely, an observation which might have been expected on histological grounds. But the ultimate course in cases of constitutional eczema has been little altered, and the permanent benefit experienced by some patients may well have been due, at least in part, to some modification of the adverse effects of other factors while the patient was under the influence of the steroids. It does seem, however, that a severe attack can be brought under control more quickly with these hormones than in any other way, and thus the patient's discomfort and his stay in hospital are decreased. When the eczematous reaction is chiefly due to an external irritant from which the patient can be removed, suppression of the symptoms by cortisone or A.C.T.H. may be continued until the effect of the external irritant has disappeared, and the skin will then remain normal on stopping treatment. Of four patients with exogenetic dermatitis, previously positive patch tests were suppressed in three and reduced in the fourth during treatment. This might have been due to false positives from patch testing during the active phase of the disease, but four other cured cases are referred to in which patch tests were similarly suppressed in three and reduced in one. This is a more clear-cut finding than that obtained by most other workers. Sulzberger *et al.*[1] could obtain evidence only of suppression by using carefully graded strengths of irritants.

Perhaps the most interesting observations in this report are those on generalized exfoliative dermatitis, since no large series has previously been reported. This condition is a type of skin reaction which may be due to various causes: it can occur as a phase in the course of an ordinary eczema or psoriasis; it may be due to drugs, especially heavy metals such as gold; it may be the first manifestation of a reticulosis such as Hodgkin's disease or leukaemia; and finally it may occur spontaneously and apparently idiopathically, giving the picture of the so-called "lipo-melanic erythroderma." The ultimate effect of steroids on such a condition will depend on its underlying nature. No case of exfoliative dermatitis secondary to drugs is reported in this series, but Steinberg and Roodenburg[2] have recorded successful results and suggest that this treatment is more satisfactory than dimercaprol. When the skin lesions are a manifestation of a reticulosis, treatment can at most suppress the symptoms, and it does not always do that. In the present series seven patients were treated whose exfoliative dermatitis was secondary to psoriasis; six improved, but all except two relapsed on suspending treatment, and further control was not always satisfactory even with a maintenance dose. In the idiopathic type results were more satisfactory; nine out of ten (excluding one who died) were permanently benefited, and four of these remained quite clear when all treatment was stopped. It would seem that here is a genuine indication for steroid therapy, and the Ministry of Health has rightly put generalized exfoliative dermatitis on the "obligatory" list for obtaining cortisone and A.C.T.H.

In assessing the results, the report does not minimize the risks. Four deaths occurred, though they were not necessarily all directly due to the treatment, and psychological disturbances occurred in six; one of these patients had to undergo leucotomy. Other less serious consequences are also recorded. Though it is not specifically mentioned, one of the most distressing of these is relapse of the disease after treatment to a state worse than before. It is possible that the results might have been better if larger doses had been used, but the risk of giving them does not seem justifiable in conditions which are not dangerous to life.

[1] Sulzberger, M. B., *et al.*, *Acta derm.-venereol.* (*Stockh.*), 1952, **32**, Suppl. 29, 343.
[2] Steinberg, C. Le R., and Roodenburg, A. I., *J. Amer. med. Ass.*, 1951, **146**, 1225.

PLACENTOGRAPHY

In 1775 the aetiology of the two main types of antepartum haemorrhage was described accurately for the first time. Rigby distinguished between bleeding (which he called unavoidable) from a placenta situated in the "zone of dilation" of the uterus, and haemorrhage accidentally caused from a normally situated placenta. His contribution was a clinical one. He emphasized that exploration of the uterine cavity was necessary to establish the correct diagnosis, and that the treatment of the two conditions was different. For accidental haemorrhage he ruptured membranes (no maternal deaths in nineteen cases), while for placenta praevia he performed version and used the half breech (five maternal deaths in nine cases).

Since the turn of the century the increasing use of safer blood transfusion and the development of the lower-segment caesarean operation have improved the prognosis for both types of antepartum haemorrhage,

and in recent years revised views on management have brought benefit to mother and foetus. Macafee[1,2] and Johnson[3] independently in Belfast and Texas advocated the adoption of a conservative approach whenever possible when suspected placenta praevia was associated with prematurity. The application of this concept halved the foetal wastage. Several years earlier Snow and Powell[4] in 1934 claimed a 98% accuracy in diagnosing the placental site radiologically, but this claim failed to gain the acceptance it deserved. Later Reid[5,6] and Stallworthy[7,8] worked on the problems at Oxford. Using an aluminium filter of his own design, Reid was developing a technique of placental localization. By altering the position of the patient as suggested by Kemp, he also used the effect of gravity on the foetus to give indirect evidence of placental position. Stallworthy had been studying the clinical problems associated with placenta praevia with particular reference to the importance of the posterior placenta, and these two workers joined forces: Reid localized the placenta with great accuracy, and Stallworthy and his team reduced the foetal loss in placenta praevia to 10%. He maintained that 20% of low lying placentas should be diagnosed before any bleeding occurred. A recent paper by Dawson and Mitchell[9] gives further support to the practical value of soft-tissue placentography.

Blair Hartley[10] at Manchester was interested in the Oxford work and planned to use the Reid filter. He soon discovered that by means of a low-kilovoltage technique he could dispense with filters. Moreover, when reviewing his films with a suitably adjusted illuminator he was able to demonstrate placental calcification after the 32nd week of gestation in about 30% of cases. He confirmed that the placental site could be diagnosed with an accuracy of 98–99%, and this by a simple method with none of the disadvantages and possible dangers of the more complex techniques of arterial puncture and angiography.

Now that the validity of placentography in skilled hands is established beyond dispute, the extent of the contribution it can make to obstetric practice has to be determined. Money and hospital beds can be saved by selecting for the conservative treatment advocated by Macafee only those cases of antepartum bleeding due to placenta praevia. These constitute less than half of the previous total requiring observation. Placenta praevia can be confirmed or disproved when an unstable lie, or an unusually high or eccentric presenting part, makes the diagnosis possible. In this way appropriate action can be taken in many cases before haemorrhage occurs. The posterior placenta praevia with its peculiar hazards can be recognized in time for the necessary precautions to be taken. Blair Hartley suggested that with close cooperation between radiologist and obstetrician a foetal mortality rate of 10% or less should be possible, and the fact that an uncorrected mortality of this order has been achieved in Oxford in recent years supports his view.

Placentography has uses beyond the diagnosis of placenta praevia. It can be of value in the differential diagnosis of soft tissue tumours and uterine abnormalities causing malpresentation. After caesarean section, hysterotomy, myomectomy, or tubal transplantation it is important in a subsequent pregnancy to know the position of the placenta in relation to the original incision. Choice of the safest method of delivery may depend on this knowledge. Further research is necessary to determine if any relationship exists between placental calcification and maturity. If there is a correlation, Blair Hartley's work may well have far-reaching clinical applications in relation to post-maturity and the induction of labour in the hypertensive patient. Finally it may be asked if these radiological advances justify their routine use on all antenatal patients. The answer is that it would be both impracticable and unjustifiable. It is true that the occasional unsuspected placenta praevia is discovered by the radiologist, but the better the standard of obstetric care the fewer will be the radiological examinations required. The possible effect on the foetus of repeated exposures to radiation should also be considered.

[1] *J. Obstet. Gynaec. Brit. Emp.*, 1945, **52**, 313.
[2] *Proc. roy. Soc. Med.*, 1945, **39**, 551.
[3] *Amer. J. Obstet. Gynec.*, 1945, **50**, 248.
[4] *Amer. J. Roentgenol.*, 1934, **31**, 37.
[5] *Brit. J. Radiol.*, 1949, **22**, 81.
[6] *Proc. roy. Soc. Med.*, 1951, **44**, 703.
[7] *Amer. J. Obstet. Gynec.*, 1951, **61**, 720.
[8] *Proc. roy. Soc. Med.*, 1951, **44**, 121.
[9] *British Medical Journal*, 1954, **2**, 1085.
[10] *Brit. J. Radiol.*, 1954, **27**, 365.

COMPLICATIONS OF MUMPS

The name mumps and its synonym epidemic parotitis both emphasize the swelling of the parotid gland as the main feature of the disease, but there is no doubt that mumps is a generalized systemic infection. Virus has been recovered from the saliva of patients and also from the blood and the cerebrospinal fluid[1]; and complications in distant organs, for example pancreatitis, oophoritis, and orchitis, are very well known. Damage to the central nervous system, even in uncomplicated mumps, has been known for many years,[2] but the incidence of clinical, as distinct from laboratory, meningitis seems to vary in different epidemics. Facial and trigeminal neuralgia, iritis, and deafness, though rare,

are all recognized complications. Myocarditis, on the other hand, has not been generally regarded as a hazard, though there are one or two reports in the literature.

Bengtsson and Örndahl[3] review 564 cases of mumps with special reference to orchitis, meningo-encephalitis, and myocarditis. Of 127 males over the age of 14, 86 (68%) developed orchitis, a much higher incidence than the generally accepted figure of 25%.[4] This may in part have been due to selective admission; even so, of the 564 cases 218 had no complications at all. Orchitis is usually unilateral and probably only rarely followed by sterility, though it may reduce fertility.[5] Salem[6] treated six cases with A.C.T.H. and claimed rapid subsidence of the inflammation in five; he suggests that such treatment may prevent disturbance of spermatogenesis by blocking the exudative tissue reaction.

Among the 564 cases meningo-encephalitis was diagnosed in 305, or 54%. This figure at first sight might cause alarm, but an examination of the clinical details dispels most of it. The diagnosis was made on changes in the cerebrospinal fluid or electroencephalographic changes. Lumbar puncture was done on very broad indications and neck rigidity was rare. There were some late mental changes in some cases, and one or two instances of neuritis, but as a rule the meningo-encephalitis produced only very slight symptoms. No cases were fatal, and, so far as can be judged from the details, if lumbar puncture had not been so freely carried out the incidence of clinical meningo-encephalitis would have been regarded as quite low. Electrocardiographic changes were found in 16 adults and 9 children, a total incidence of 4.4%. The changes in 20 consisted in S–T depression and flattened, iso-electric, or negative T waves; two had atrio-ventricular block. The onset was usually in the first week and the average duration about four weeks; in a few cases the changes persisted for several months. Clinical manifestations were fatigue, tachycardia, transient murmurs, and in five cases precordial pain. All patients in this series recovered, but the authors refer to one fatal case in which interstitial myocarditis was confirmed at necropsy. It would appear that myocarditis is a complication worth bearing in mind in adults with mumps. Meningitis or meningo-encephalitis is rarely severe, and its chief importance probably lies in the necessity of distinguishing it from non-paralytic poliomyelitis. Orchitis remains the most troublesome complication of the disease.

[1] Downie, A. W., in Bedson, S. P., *et al.*, *Virus and Rickettsial Diseases*, London, 1950, 241.
[2] Banks, H. S., *The Common Infectious Diseases*, London, 1949, p. 164.
[3] *Acta med. scand.*, 1954, **149**, 381.
[4] Wesselhoeft, C., in Banks, H. S., Editor, *Modern Practice in Infectious Diseases*, London, 1951, p. 562.
[5] Werner, C. A., 1950, quoted by Wesselhoeft, ibid., 1951.
[6] *Acta med. scand.*, 1954, **149**, 341.

SKY-HIGH

The title "Five Years of Space Medicine" in a professional journal comes as something of a surprise to doctors whose more humdrum existence has not yet brought them within, say, a rocket flight of this specialty. But this year the Space Medicine Association (of the U.S.A.) held its fifth anniversary meeting, noted an increasing membership, established an abstracting service to cover the many papers now relevant to its subject, and discussed current research on the biological problems of space travel.[1] These seem rather formidable at present, but may wear a less forbidding aspect when more becomes known about them through the fairly elaborate experiments now being carried out.

Space begins at about 120 miles (200 km.) of altitude, according to Campbell, who has reviewed some of the problems of travel in it.[2] So slight would the friction be there that a space ship cruising round the earth would lose only a few inches of altitude in months of travel. The design of a vehicle wherein life would be supportable in these novel conditions has probably not yet reached the blue-print stage anywhere, though "the development of a small instrumental orbital satellite now lies within the economic and technical competence of our society."[3]

So far animal experiments have been carried out at about 90,000 ft., or 17 miles (27 km.), by transporting mice and fruit flies in a balloon-borne gondola to that height,[4] though the projection of mice and a monkey to about twice that altitude by means of a rocket has been filmed and briefly reported.[5] In the balloon experiments various ingenious mechanical devices were incorporated to cool the gondola, heat it, supply oxygen, remove carbon dioxide, maintain pressure, and count cosmic rays. Eight mice have returned alive from these flights and only preliminary results of the experiments are recorded.[6] Rather more white hairs in black-haired mice have been noted than are normally seen in these animals, and some of them are thought to be the result of bombardment by cosmic heavy nuclei. One mouse in particular showed four months after its flight a row of white hairs that may have been caused by the grazing path of such a nucleus, and the suggestion is made that the skin with its hair follicles may serve as a biological track plate.

Nor are cosmic rays the only hazard when real space is reached. Meteors and meteoritic dust particles fly about at tremendous velocities there and would be likely to penetrate the envelope of any space-ship whose track they crossed, with consequent danger to the air pressure inside if not to the bodies of the occupants themselves. Again, there are physiological and psychological problems of weightlessness to be studied, and some preliminary experiments have been carried out on human subjects as well as on such experimental animals as normal and labyrinthectomized turtles. During one flight with these creatures, short decelerations caused the water of the aquarium to rise and float freely in the air.[7] At about zero gravity the human subject is apt to feel fuddled or dizzy, but with experience, and with strong visual references, it is apparently possible to overcome these unpleasant sensations. The day when man enters space—and returns from it—may yet be some way

[1] Poppen, J. R., *J. Aviat. Med.*, 1954, **25**, 366.
[2] Campbell, P. A., *J. Amer. med. Ass.*, 1952, **150**, 3.
[3] Lee, M. R., *et al.*, *J. Aviat. Med.*, 1954, **25**, 399.
[4] Simons, D. G., ibid., 1954, **25**, 380.
[5] *J. Brit. Interplanetary Soc.*, 1954, **13**, 223.
[6] Chase, H. B., *J. Aviat. Med.* 1954, **25**, 388.
[7] Gerathewohl, S. J., ibid., 1954, **25**, 412.

off. Mice are likely to be the first mammals to get there, and the astonishingly informative drosophila may soon yield data on the genetic threat, if any, of cosmic rays.

SCIENCE AND NEW WORDS

When Dr. E. D. Adrian, O.M., in his presidential address to the Royal Society this week said that the range of natural science was now so vast that the President need feel no embarrassment by his lack of understanding of the work he rewards, he encouraged lesser mortals to feel less ashamed of their ignorance. A hundred or even fifty years ago, Dr. Adrian said, many Fellows of the Royal Society might have known at least the vocabulary of the general content of natural science. But the number diminishes, and "certainly it becomes every day more difficult to find scientists whose interests are wide enough to assist the advance by helping the specialists to understand each other." Medicine, also, suffers from the burden of widely ranging facts and highly specialized techniques, giving rise to a rapidly growing vocabulary of new words. Are these chosen, it may be asked, with discretion and caution? Dr. Adrian told his audience on Tuesday how Michael Faraday sought advice on new terms from William Whewell, Master of Trinity College, Cambridge—"the great discoverer seeking advice from the most learned scholar of his day." In his experiments on electrolysis Faraday had called the two poles "electrodes" and wanted new terms to differentiate them and to describe the products of current flow. Whewell, just over 120 years ago, suggested the terms anode and cathode, and, in a letter Dr. Adrian quoted, wrote: "If you take *Anode* and *Cathode* I would prefer for the two elements resulting from electrolysis the terms *Anion* and *Cation*, which are neuter participles signifying *that which goes up* and *that which goes down*; and for the two together you might use the term *ions* instead of *Zetodes* or *Stechions*." Faraday took his advice. Whewell began another letter to Faraday thus: "I am always glad to hear of your wanting new words, because the want shows that you are pursuing new thoughts and your new thoughts are worth something." We may hope that the discoverer and the scholar will continue to imitate this example of great minds coming together to find new words for new thoughts and facts, for otherwise the words are likely to be inappropriate.

TRAINING SCHOOLS FOR NURSES

Since the grouping of hospitals under hospital management committees and boards of governors there has been some amalgamation of existing training schools for nurses—a change which has the whole-hearted approval of a committee[1] set up by the Departments of Health to consider the function, status, and training of nurse tutors. It is understandable that many of the smaller hospitals like to have the status of training schools and so to offer more attractive conditions of employment to trained nurses, besides obtaining the services of student nurses, but at present the number of nurse training schools is greater than is necessary, and they cannot all be adequately staffed. There is a shortage of nurse tutors, and in the committee's view the single-handed nurse tutor working in a small hospital with few student nurses would be better employed in a larger training school, where she would have increased responsibilities and perhaps as a consequence would be less tempted to drift into administrative or other work. In addition, the more comprehensive training given in the larger hospitals is advantageous to the student nurses. The committee suggests that in group schools of nursing the education centre should be staffed by qualified tutors, and the ward sisters of the hospitals would play their part as instructors in practical nursing in the wards. This acknowledgment of ward sisters as specialists in their own sphere and members of the team of teachers is commendable and should help them to take their rightful place in the training schools.

The grouping of existing training schools will afford the hospitals an opportunity to seek approval to become recognized training schools for assistant nurses. This would allow them greater scope in the selection of candidates for training, and would relieve the frustration of the nurse tutors attempting to teach student nurses who are unable to profit by the course of training intended to prepare them for the examination for State registration. According to a report[2] of the Central Health Services Council published last week there is a place for more assistant nurses in nearly every field of hospital and domiciliary nursing, and everything possible should be done to stimulate the establishment of assistant nurse training schools and to maintain and strengthen existing schools. The report gives useful advice about the status and training (including part-time training) of assistant nurses and discusses the possible avenues of promotion available to them.

[1] Report of the Committee set up to Consider the Function, Status and Training of Nurse Tutors, 1954. H.M.S.O., London.

[2] Report by the Standing Nursing Advisory Committee on the Position of the Enrolled Assistant Nurse within the National Health Service, 1954, H.M.S.O., London. Price 6d. net.

END OF A JOURNAL

Though the demise of an old-established medical journal is an occasion for regret, it may be seen occasionally as one for congratulation also. Venereal diseases in the U.S.A. and Western Europe have now become so much less troublesome as causes of morbidity and mortality than they formerly were that too few papers are being written to sustain the *American Journal of Syphilis, Gonorrhoea, and Venereal Diseases*. With its present number the thirty-eighth and last volume is brought to a close. As its editor, Dr. J. E. Moore, points out, the *British Journal of Venereal Diseases*, published by the B.M.A., is now the sole periodical publication in English devoted to this field, and he expresses the hope, which we share, that American investigators may send papers to it that would otherwise have been destined for the *American Journal of Syphilis*.

ST. MARY'S HOSPITAL MEDICAL SCHOOL

QUEEN MOTHER AT CENTENARY CELEBRATIONS

H.M. Queen Elizabeth the Queen Mother paid a visit to St. Mary's Hospital Medical School on Tuesday of this week on the occasion of the school centenary, when it was announced that her Majesty had consented to be the first Patron under the school's new constitution. She laid the foundation stone of the new school building in 1933.

On her arrival the Queen Mother was received by the president of the school, the Earl of Verulam, and the following were presented:

The Earl of Iveagh (Chairman of the Wright–Fleming Institute), Mr. Anthony de Rothschild (Chairman of the Board of Governors of the hospital), Mr. E. E. Lawley (Chairman of the Centenary Fund Council), Lord McGowan (Treasurer of the Wright–Fleming Institute), Mr. A. G. Cross (Dean of the school), Sir Alexander Fleming (Principal of the Wright–Fleming Institute), Lord Moran (President of the Students' Union), and Mr. J. E. Stevenson (Secretary of the school).

In the medical school library Lord Verulam said that they were gathered to commemorate a history of service to medicine, to medical science, and to mankind such as perhaps no other similar institution in the world could equal, and which had started, under unpromising conditions, a few yards from that very spot in 1854. "We of the present generation are also here to pledge ourselves to achieve progress, and to give service no less distinguished, if we can, in the years to come."

The Centenary Wing

In inviting the Queen Mother to place certain objects in the second foundation stone of the future centenary wing, he said that this stone, resting on its plinth before them, would be incorporated into their new buildings, buildings for teaching and research, which would complete the block in which they were now assembled. These tokens of the school's achievements would be sealed in position inside the stone, with glass covers for all to see, and the stone would remain where it was until it could be placed in the foundations of the new extension, to be sited in the courtyard outside.

The five objects were:

A signed copy of *The History of St. Mary's Hospital Medical School*, by Sir Zachary Cope.

A copy of the programme of the present proceedings.

A list of the members of the school council, the council of the Wright–Fleming Institute, the academic board, and the staff and students.

A stop-watch indicating the time, 3 minutes 59.4 seconds, to mark the achievement of Roger Bannister, a student of the school, who was the first athlete in the world to run a distance of one mile in under 4 minutes.

A penicillin culture plate presented by Sir Alexander Fleming.

Lord Verulam added that an appeal for funds was now to begin. Not less than £250,000 was needed for the building and its equipment, and they believed their search would not be in vain. As endowment for continued research, not eligible for finance from other sources, much more was needed. Already, before the appeal had opened, they had received, or had been promised, more than £25,000, a foretaste, he was convinced, of what was to come.

The Queen Mother's Address

The Queen Mother then presented special medals and prizes to students and recent graduates of the school, and placed the tokens in the foundation stone, closing the two hollows in the stone. She addressed the company as follows:

"The interest and welfare of St. Mary's has been very close to my heart since 1930, when I became President, and I have watched its progress with pride and affection through the years in peace and war. I share, therefore, with all here the pride and satisfaction with which we acclaim our centenary. I think it is most fitting that this occasion should be linked with an extension of the facilities available for medical study and research, for it is only thus that the art of healing can be advanced. In 1854 this medical school was already dedicated to the task of educating medical students and medical research. All of us are mindful of the relief of suffering which flowed from the discovery of penicillin by Sir Alexander Fleming, one of the outstanding medical achievements in the history of our country. It is my hope that the medical school, by receiving generous benefactions, will be able to increase its accommodation by the erection of the new centenary wing, and thus be able to extend its outstanding work in the field of medical education and medical research."

The Dean thanked Her Majesty, and after a short religious service the Royal Party inspected the Penicillin Jubilee Exhibition, arranged and presented to the Medical School by the four British manufacturers of penicillin. They then visited scientific demonstrations in the departments illustrating research in the medical school and the Wright–Fleming Institute. In the physics department radioactive isotopes were a feature; in the pharmacology department the story of histamine was pictorially displayed, and in the bacteriology department were shown the results of a survey of upper respiratory infections among 50 families in Paddington. The demonstrations included some of the apparatus used by A. D. Waller, who first observed the human electrocardiogram at St. Mary's School in 1887.

ANNUAL REPORT OF THE MINISTRY OF HEALTH

FIVE YEARS OF THE N.H.S.

The report of the Ministry of Health for 1953 is divided as usual into two parts, on the second of which—entitled "On the State of the Public Health"—we commented in last week's *Journal* (p. 1278). Part I, which deals mainly with the National Health Service, was published this week,[1] and its compilers have taken the opportunity to review the progress of the National Health Service during the first five and a half years of its existence. In his introduction to the report the Minister of Health describes the launching of the Service as a formidable undertaking, and continues: "But the initial problems . . . were tackled with spirit and with the loyal and united efforts of all concerned. There is indeed much to do, but there are solid achievements to record."

The Hospital Service

In 1948 3,000 hospitals were taken over by the Ministry, and the most important immediate task was, and still remains, to raise the standards of the undeveloped and inefficient hospitals to those of the best. Not only have beds increased by nearly 6%, but the number of consultants working in hospitals has risen by 23% (from 5,145 to 6,355). In 1949 there were 126 beds to the equivalent of one whole-time consultant: in 1953 the ratio was 103 to 1. Only one-fifth of the total capital expenditure (£45m.) on the hospital service has gone to providing new beds; the remainder has been spent on new or improved services. The general improvement in efficiency, and the employment of more consultants and more nurses, enabled half a million more in-patients to be treated in 1953 than in 1949, and the number of new patients seen in out-patient departments rose by 600,000 in the same period. Even so there were nearly 30,000 more patients on hospital waiting-lists in 1953 than in 1949. Unfortunately the mental and mental deficiency hospitals have benefited to only a small extent from the general increase in the number of nurses, and the shortage of staff in these hospitals continues to be very serious. The report goes into some of the details of the hospital service, and mentions that by the end of February, 1954, 357,489 patients had been provided with hearing-aids in England and Wales. The number of blood

donations is just keeping pace with expanding demand: in 1953 there were nearly 600,000 donations, compared with 384,000 in 1948.

More efforts are now being made to look after old people in their own homes, but even so between 1949 and 1953 the number of chronic sick patients treated at hospitals rose from 81,167 to 101,081. There were some 3,500 more beds for them at the end of the period. At the end of 1953 there were 58 geriatric units operating in England and Wales, and the report pays tribute to the work of voluntary organizations in the care of old people.

General Medical Services

In his introduction to the report the Minister of Health remarks that the family doctor is beginning to be seen and accepted as the clinical leader of the health team which cares for the patient at home.

The report surveys the structure of general practice in some detail, noting that "partnerships, the best basis of group practice, have increased quite considerably in number, and this would seem to indicate that the Working Party's recommendations[2] have had the desired effect of encouraging this type of practice."

During 1953 admissions to medical lists totalled 1,568, against 1,100 in the previous year. Of those newly admitted, about two-thirds were doctors entering established partnerships. About 45% of practices are now partnerships. The names of 729 doctors were deleted from the lists on death or retirement. The net increase on the lists was therefore 839, compared with a yearly net increase of some 300 in the early years of the Service. The total number of principals giving unrestricted medical services on lists on July 1, 1953, was 18,010, and some 26% of these were taking part in partnerships of larger sizes.

Looking to future recruitment, the report comments, "Entry into general practice will predominantly tend to be by way of assistantship in a firm of partners." The most sought-after vacancies in general practice occur south of a line drawn from Hull to Gloucester. Taking the country as a whole, there was a reduction in the number of "designated" areas—that is, where the number of doctors is not regarded as adequate—and a corresponding improvement in the number of doctors with surgeries in "intermediate" areas. Nearly half the doctors in the Service in July, 1953, were under 45 years of age, and over 80% were under 55.

General Dental Services

In 1953 payment was claimed by dentists for between 6 and 7 million courses of treatment, and the rise continued in the numbers of children treated.

The total number of dentists in the Service was 9,473, which shows a net estimated loss of 82 in the year. Some 42% of all dentists in the Service are aged 55 or over, and it is certain that for some years the rate of retirement will be extremely high. "This is the more serious in view of the decline in entry into the dental schools during recent years." There was a high intake in the immediate post-war years. In 1947 there were 654 entrants, and every year since then there has been a decrease, the number in 1953 being 466. The annual intake for some years before the war had averaged about 390. Allowing for wastage, etc., among students and the high retirement rate, "no increase in the numbers on the *Register* can reasonably be foreseen for some time."

There are more dentists in relation to the population in the South of England than elsewhere, and fewest in the Midlands. The report suggests that the disparity between the number of dentists in the North and South is likely to become even more pronounced. On the other hand, there is a greater demand for treatment in the South.

Supplementary Eye Services

The volume of applications for both sight-tests and glasses continued to increase in 1953, and for sight-tests was some 13% higher than in the previous year. Altogether 4,211,000 tests were given and 3,703,000 pairs of glasses supplied. Tables in the report show that more people between the ages of 40 and 59 have tests than in any other age group, and that more than twice as many tests were given to girls aged 15 to 19 as to boys between the same ages. Indeed, 539.2 per 1,000 females of all ages receive tests compared with 364.1 males.

Pharmaceutical Services

During the year 219,756,904 prescriptions were dispensed by chemists, an increase of nearly 4,000,000 on 1952 and 17,750,000 on 1949. The total cost of these prescriptions was £44,700,965 (an average cost of 48.82 pence), compared with the 1952 cost of £43,768,599 (average 48.63 pence) and the 1949 cost of £30,331,303 (average 36.04 pence). For a few months in 1953 (from August to November), for the first time since the start of the Service, the average cost per prescription was lower than for the corresponding month of the previous year—a reduction "attributed mainly to the co-operation of practitioners in accepting the advice of the Joint Committee on Prescribing."

Disciplinary Action

In 1953 1,628 alleged breaches by medical practitioners and others of their terms of service were considered by service committees and reported to the Minister by executive councils. Of these, 449 related to the general medical services, and 539 to the general dental services, 588 to the pharmaceutical services, and 52 to the supplementary ophthalmic services. In 757 cases the executive council recommended that no action should be taken, mainly because the complaint had not been substantiated. In 343 cases the council recommended that a warning letter should be sent; other action was considered appropriate in the remaining cases, including the withholding of a sum of money in 363 cases. The number of cases was very similar to that in the previous year.

Local Health Authorities

In reviewing the progress of the local health authorities' services the compilers of the report have drawn on the surveys carried out recently by these authorities at the request of the Minister. There have been no great changes in the work of domiciliary midwives. In 1949 43% of the mothers attended by midwives during their confinements received gas-and-air analgesia; in 1953 the figure had risen to 68%. The demand for home nursing has increased, the number of nurses employed by local health authorities rising from 7,758 (including 4,604 part-time) in 1948 to 9,251 (5,241 part-time) in 1953. Many more home helps (mainly part-timers) have also been employed during the same period. Finally the ambulance service has had to expand to meet much larger demands, the number of patients carried rising from 7,000,000 in the first year of the N.H.S. to over 12,000,000 in 1953.

The report also contains the usual sections on welfare services for the elderly, the handicapped, and the homeless, on food and drugs, and on civil defence. In connexion with the last-named of these subjects, the membership of the National Hospital Reserve rose in 1953 from 29,265 to 34,943.

Finance

The total cost of the National Health Service (England and Wales) in the year ended March 31, 1953, was about £486m. Of this £384m. was met by the Exchequer. The cost of the Service was particularly heavy in that year because it included payments to general medical practitioners of remuneration at increased rates not only for that year but also in respect of previous years (following the award made by Mr. Justice Danckwerts in March,

[1] *Report of the Ministry of Health for the Year Ended December 31, 1953.* H.M.S.O., London. Price 8s. net.

[2] *Distribution of Remuneration among General Practitioners,* 1952. H.M.S.O., London.

1952). Even apart from this, however, the cost was again heavier than in the previous year, and has, in fact, risen steadily year by year.

Apart from the overriding need to secure maximum efficiency and proper economy, the Minister considers that the major preoccupations of the N.H.S. at the present time include the need to provide improved services for the ageing section of the population, particularly the frail ambulant and the chronic sick, the increasing pressure on staffing and accommodation in mental and mental deficiency hospitals, and the problem of the nation's drug bill. He concludes: "As taxpayer and ratepayer the individual ultimately pays for the services provided to meet the needs of his fellow citizens or himself. If for no higher motive, it is in his own interest to use them wisely and thus help to ensure that the resources available are not diverted by his thoughtlessness or selfishness from serving the needs of those who are really sick and handicapped and whose interest should represent a priority claim on them."

SOCIETY OF MEDICAL OFFICERS OF HEALTH

GROUP PRACTICE AND HEALTH CENTRES

The annual dinner of the Society of Medical Officers of Health was held in London on November 25, with the President, Dr. JEAN M. MACKINTOSH, occupying the chair. The principal guest was Sir HENRY COHEN, who, in proposing the health of the Society and its first woman President, said how appropriate it was that in the important pre-centenary year of its existence the Society had as its President one who had been closely associated with one of the branches of public health—maternity and child welfare—which had shown such outstanding achievements during the last half century.

Sir Henry Cohen reminded the Society that in 1951 he had said, in his Presidential Address to the B.M.A., "I need hardly emphasize that prevention is better than cure and that a service which maintains health is to be preferred to a service which promotes healing." Referring to the report on general practice with which his name was associated, Sir Henry Cohen said he felt that some critical remarks in one of the local government journals on the question of health centres had arisen from a complete misreading of what was in the report. He said that his committee in that report emphasized what were the real advantages of a group practice. General practitioners in such a practice could pool resources, knowledge, and time in such a way that there was adequate leisure: a man had an opportunity of visiting hospital, of visiting his B.M.A. Division, and of taking part in the medical administration of the N.H.S. without any risks to his practice if there was a proper group understanding between a certain number of practitioners—and, moreover, such a group could be quite independent of any outside body. The committee had felt that this was an aim which might be achieved within a reasonable space of time, and that the group practice idea was at any rate a step towards the ideal of health centres. This had been interpreted as a condemnation of the health centre as conceived in the N.H.S. Act of 1946. Sir Henry continued: "Now nothing was further, I am sure, from the mind of the committee. We were quite satisfied that group practice and health centres are not antagonistic. They are not conflicting ideas. We recognized that you could have a group practice without a health centre. I think some of us appreciated that you might have a health centre without a group practice—that you could not ensure harmony by six or eight doctors working in the same building—but we did lay down quite clearly our reasons for this, and I should have thought the reasons were as valid and convincing as any set of arguments could be. However, as I say, we did have criticism and I do hope that before that is accepted at its face value you will re-read the sections dealing with health centres and group practice."

Dr. JEAN MACKINTOSH, replying to the toast, said that one of the contributions which the public health service could make was to help people to live happily. In the report recently issued on the internal administration of hospitals she had noticed a recommendation that a medical administrator should be of the same status as a consultant, in that they should have the same remuneration. She thought that those engaged in the public health service might take heart from that and feel that it was perhaps a straw showing which way the wind was blowing—that they would in time be recognized as what they really thought they were, an essential part of the N.H.S.

The health of the guests was proposed by Dr. ANDREW TOPPING, and responded to by Alderman W. E. YORKE, of Sheffield.

EXPERIMENTS IN SOCIAL SERVICE

The annual meeting of the National Council of Social Service took the form this year of a one-day conference, held on November 25 in the Beveridge Hall of the University of London, on the subject, "The pioneer role of voluntary organizations." Six speakers opened discussions on this subject, each describing a pioneer enterprise in which he or she was engaged. Mr. PATRICK STEWART, secretary of the National Association for the Paralysed, told of the Dorincourt Estates Project—a plan to provide a long-stay hostel for the rehabilitation of the young chronic sick. He said that for the first time the problems of young persons in chronic wards, the rehabilitation of the severely disabled, the opportunity of sheltered employment, and the provision of proper accommodation had been gathered into a single scheme. In that sense Mr. Stewart claimed that the scheme was a pioneer effort. "We like to think that a person who has got stuck half-way in the process of rehabilitation might be able to travel the whole distance from a hospital bed, through our long-stay hostel, on to the sheltered workshop, and, perhaps, out into the world again."

What Should be the Role of the Voluntary Organization?

He had found from a brief experience that the pioneer activities of voluntary organizations seemed to get more and more limited. He was sometimes frightened by the fact that what they were asked to do was always to pioneer. If the voluntary organizations got backing only for pioneer work, then their experiments, their activities in this or that particular field of social work, were going to become more and more limited. He mentioned projects which might have been pioneer efforts 10 or 15 years ago, but which were now accepted as part of the social work of this country. He thought it essential that the backing, the assistance, the interest of the voluntary organizations should continue long after projects had ceased to be pioneer efforts.

Boarding Out Old People

Mrs. H. L. SLATER, secretary of the Exeter Council of Social Service, described a boarding-out scheme for elderly people needing a home. This had started, almost accidentally, from an advertisement inserted in a local paper for a home for a man of 84. Her council received 33 replies to that advertisement, and from this beginning there was slowly built up an organization for finding homes for elderly people and fitting the right elderly people into them. There was a strong link with the almoner of the hospital, who put the organizers in touch with elderly people due to leave hospital and having nowhere to go. But the scheme was not restricted to people leaving hospital; it included all elderly people who, for one reason or another—perhaps the death of a relative or the fear of living alone—needed a home with someone willing to care for them. "We regard it as most important," said Mrs. Slater, "that so far as possible arrangements should be left to the people immediately concerned, with the minimum supervision from ourselves." Follow-up was done as unobtrusively as possible.

The Unplaced Mental Defectives

A more sombre note was struck by Miss M. APPLEBEY, secretary of the National Association for Mental Health, who described an experimental short-stay home for backward children in Liverpool. This had been purchased by the National Association of Parents of Backward Children. Out of every 1,000 of the population about eight were mentally defective, of whom three required special care. Unfortunately, said Miss Applebey, in the present stage of our hospital services those three could not obtain what they needed, and there were at the moment at least 9,000 serious cases in the community which could not respond to treatment. As the Liverpool scheme developed, it was found that 75% of the cases needed nursing care. The dangers of infection being brought into the short-stay home were also greater than had been foreseen, and they were now faced with the necessity of transforming the holiday home into a nursing unit. The home took in 24 children; the staff consisted of a warden and his wife, a night nurse, and six day helpers.

Two other experiments in social service were described, one of them a residential one-week course for girls at work, with the aim of demonstrating to "difficult" girls the importance of women's contribution to society. This scheme was described by Miss J. MACALISTER BREW, LL.D., education and training adviser to the National Association of Mixed Clubs and Girls Clubs. The other effort concerned the arrangements made for community activities at the new town of Harlow. In summing up the conference, Mr. G. E. HAYNES, secretary of the National Council of Social Service, said that the limits of pioneering were not shrinking, and voluntary organizations, if they looked at their tasks in the right way, would find that in this new society in which we were living the chances of pioneering were as great as ever. It was important, said Mr. Haynes in conclusion, to appraise these experiments so that their lessons were not lost. On the whole, voluntary organizations were not very good at appraising the significance of their own work. The research element in all this service was an important one.

BRITISH ORTHOPAEDIC ASSOCIATION

AUTUMN MEETING

At the autumn meeting of the British Orthopaedic Association, held at the Royal College of Surgeons on October 22 and 23, a panel discussion on "Low Back Pain" was one of the best features. The panel of experts, under the chairmanship of the president, Professor BRYAN MCFARLAND (Liverpool), consisted of Mr. C. G. ATTENBOROUGH (Oswestry), Mr. G. BLUNDELL JONES (Exeter), Mr. P. H. NEWMAN (London), Mr. H. OSMOND-CLARKE (London), Mr. K. H. PRIDIE (Bristol), Mr. N. W. ROBERTS (Liverpool), and Mr. E. G. SHAW (Swindon). They proceeded to answer questions from the floor.

Low Back Pain

The first question demanded the panel's *explanation of the physiological basis of the relief of low back pain by a plaster jacket.*

Mr. PRIDIE said that disk lesions produced muscle spasm, and this spasm increased tension in the disk, which aggravated the spasm. He thought a jacket relaxed the muscle spasm and thus broke the vicious circle. Mr. BLUNDELL JONES differentiated three periods when relief might occur. The first was immediate, and he agreed with Mr. Pridie's explanation. The second occurred after two or three weeks, when improvement was due to the relief of hyperaemia and oedema, and the third much later when the root pain disappeared with the onset of true healing. Mr. ROBERTS said that no one really had any idea of the explanation. He would simply put it down to rest, which cured most things if maintained for long enough.

This led to a discussion of the correct duration of plaster immobilization. Mr. NORMAN CAPENER (Exeter) said "until pain has been relieved for 10 days." The PRESIDENT thought the period should be not less than three months.

The next questioner quoted a neurosurgical opinion that "*70% of operation cases where simple removal of the disk had been performed suffered a return of pain and that a fusion operation should be done as a routine at the primary operation.*" *What were the panel's views?*

Mr. OSMOND-CLARKE thought it depended on the degree of instability demonstrable at operation. He preferred the body-to-body fusion technique. Mr. PRIDIE said that very few needed primary fusion. He also preferred the inter-body method, which he found the easiest and most successful and which allowed the patient to get up in a fortnight. Both Mr. NEWMAN and Mr. ATTENBOROUGH spoke in favour of the same technique, but the former remarked that it was difficult and required much retraction.

Did lumbar fibrositis exist, and, if so, what was its pathology?

The panel were in great doubt concerning the first part of the question, but recognized the entity to which the name is given. Regarding the pathology, Mr. ROBERTS and Mr. JOHN CHARNLEY (Manchester) thought it was always a disk disorder of some sort. But Mr. PRIDIE remarked that some cases at least were merely disgruntled people in need of an outlet. Sir HARRY PLATT (Manchester) said there was no clinical evidence that the syndrome was due to a disk lesion. Nodules and areas of round-cell infiltration had been found. He thought it was a collagenous disorder of some sort, but the exact pathology did not matter so long as there was no nerve involvement. Mr. A. L. EYRE-BROOK (Bristol) had no doubt that lumbar fibrositis was a real entity. If the pain was due to a disk lesion, there was no tenderness in the muscles. Mr. W. E. TUCKER (London) said that tender stiff muscles were found in cases of occupational or postural strain, and also in muscle spasm, which could result in secondary changes in the muscle itself causing persistent tenderness.

Could the panel explain the absolute increase in sciatica and low back pain?

Mr. PRIDIE agreed that the increase was real, and put it down to modern life in general, with its lack of rest, low furniture, etc. Mr. NEWMAN stressed that with increased intelligence went a lower pain threshold, and he therefore thought that the present-day better standard of living might be significant. Mr. ROBERTS did not believe that anyone knew if the increase was real: there was no definite evidence, in his opinion.

Mr. G. K. MCKEE (Norwich) asked *if the disk should be explored at the same time as a lumbo-sacral fusion.* He himself thought it should be if there were neurological symptoms or signs.

Mr. NEWMAN agreed. The disk should be explored if sciatica was or had been present. Mr. OSMOND-CLARKE remarked that absolute operative fixation was not everything, and Mr. PRIDIE thought exploration of the disk a vital part of the operation. The PRESIDENT, however, thought the operations should be done separately, one or other being done as the indications demanded, but Mr. MCKEE said there were cases where both were needed at once. Mr. W. SAYLE-CREER (Manchester) thought that if the disk had been explored an inter-body fusion was preferable, but, if not, a Bosworth H-graft was the most satisfactory.

Did the panel believe in fusing one or both sacro-iliac joints?

The panel were not sure that either should be fused. Mr. SHAW believed that both should be fused in cases of sacro-iliac arthritis, Mr. C. H. CULLEN (Manchester) thought it was indicated in post-traumatic cases, and Mr. W. E. TUCKER remarked that true sacro-iliac strain was a very rare lesion.

Could a cervical disk lesion cause low-back pain?

MR. OSMOND-CLARKE thought not, though both could occur together. But a big lumbar disk prolapse could pull on the theca and cause pain higher up the back. Mr. JOHN CHARNLEY referred to the condition he called "acute glaucoma of the disk," which could be recurrent and lead to fibrosis and later sequestrum formation in the disk. This

introduced the era of mechanical failures in the disk, but he thought there was no real prolapse until pain was felt below the level of the thigh. Mr. R. H. METCALFE (London) described his personal experience of cervical spondylosis, and thought that the aggravation he had suffered from short-wave diathermy was due to congestion and swelling around the intervertebral foramina.

Mr. F. C. DURBIN (Exeter) asked for the panel's *indications for lumbo-sacral fusion*, excepting disk prolapse.

The PRESIDENT thought the main indication was pain, persistent, disabling, and not relieved by prolonged conservative treatment. Mr. ROBERTS thought it vital to make a diagnosis first. Ninety-nine times out of a hundred the surgeon did not know why the patient had pain, and therefore the operation must be a rare one. The surgeon must first be convinced that there was some truly local lesion. Mr. PRIDIE thought fusion should be done for those patients who had a recurrence of symptoms after removal of a disk. Mr. OSMOND-CLARKE, while agreeing with the President's indication, thought this should include any local instability, and recommended that more use should be made of diskograms. Mr. NEWMAN said the indications must be based on clinical assessment, those with chronic pain or recurrent sharp attacks at short intervals being the most suitable. Mr. BLUNDELL-JONES remarked on the difficulty of defining the correct level for fusion. He thought that before operation patients should have had symptoms for not less than a year. He found local infiltration and films taken during bending useful adjuncts to correct localization. Usually it was necessary to await the appearance of definite *x*-ray changes. Mr. ATTENBOROUGH asked whether one could assure the patient that operation would relieve the symptoms. He himself was doubtful of this. Mr. SHAW said one must insist on the presence of a local lesion. The operation was useless if there was pain at other levels.

How high did the panel assess the psychogenic element in low back pain?

Mr. SHAW said that in his series six had been labelled psychogenic and all had been cured by operation. Mr. ROBERTS did not think that this necessarily meant that they had had organic lesions.

What did the panel think gave rise to the greatest difficulty in differential diagnosis?

Mr. OSMOND-CLARKE was convinced that the telephone should take the highest place. Mr. J. R. ARMSTRONG (London) pointed out that at operation 2% were found to have some form of tumour within the spinal canal. Surgeons should be prepared to make more use of myelograms, but not as a routine.

Mr. J. S. ELLIS (Southampton) asked *what place, if any, there was for manipulation in low back pain and sciatica.*

Mr. ROBERTS thought it was criminal to manipulate under anaesthesia, except in the case of the young woman with little or nothing wrong with her. Mr. PRIDIE said that life was just one big manipulation. He thought it a most valuable weapon, but one that should never be used in the presence of a tension lesion. The PRESIDENT said he found that straight distraction under anaesthesia was valuable but that other manipulations were dangerous. Mr. G. K. MCKEE said that recently he had stretched all patients on a special table without anaesthesia before applying a plaster jacket in hyperextension, and thought he was getting improved results. Mr. BLUNDELL JONES felt that there was a place for manipulation in the later stages of treatment. Mr. EYRE-BROOK said he did not believe that a disk could be sucked back and stay back.

One-third of all orthopaedic out-patients complained of low backache. Had the panel any suggestion for coping with this vast number?

The panel had none.

Orthopaedic Physiology

The remainder of the meeting was taken up with a long session on lumbo-sacral fusion at which four surgeons discussed their results, a number of short original papers, and clinical and operative demonstrations at London teaching hospitals. Of the papers, three were on subjects of wide general interest—namely, those, respectively, by Mr. N. G. C. HENDRY (Aberdeen) on the physiology of the intervertebral disk, Mr. CHARNLEY on the slipperiness of cartilage, and Mr. W. J. W. SHARRARD (London) on the recovery of function after poliomyelitis.

Mr. HENDRY (Aberdeen) discussed the imbibition characteristics of normal and abnormal intervertebral disks. The degree of hydration of the nucleus pulposus, he said, depended not only on osmosis, as was the case in the annulus fibrosus, but also on imbibition, which is the characteristic power of a gel to absorb fluid into its system, even against enormous pressure, until a certain physical state has been reached. Most of the fluid in the normal nucleus was held there by virtue of this power of imbibition, and little increase in weight followed immersion in water or saline, unlike what happened with the annulus. In the degenerate nucleus, however, a smaller proportion of the fluid was held by imbibition and more by osmosis, and this change became more marked as the degenerative process progressed. Any failure of imbibition on the part of the nucleus put an extra strain on the annulus.

Mr. CHARNLEY, in his paper, described experiments to measure the coefficient of friction between cartilage and cartilage, and between cartilage and other substances. The first combination was about three times as slippery as ice on ice. He discussed the theories of friction and lubrication, and pointed out that in joints (which move relatively slowly) the film or wedge of fluid proposed by some writers could not in fact be an important agent. Cartilage had a lower coefficient of friction with acrylic resin than with steel. Degenerative cartilage retained its slippery properties, and wiping dry the cartilage used in his experiments did not affect the results. Sclerosed bone had a high coefficient of friction, and a squeaking joint after an arthroplasty was a sign of very high friction with dangerously high forces being transmitted to the stem. Mr. Charnley stressed that in any arthroplasty sclerosed bone should always be removed, and no weight bearing should be permitted until time had been given for the metaplasia of the newly formed fibrous lining of the joint into fibrocartilage.

Recovery after Poliomyelitis

Mr. SHARRARD, introduced by Mr. J. I. P. JAMES (London), reported the result of an investigation on 140 poliomyelitis cases, each observed for 36 months, with the object of discovering how long and to what extent gain in power of paralysed muscles might be expected to continue. In his muscle charting Mr. Sharrard had modified the Medical Research Council scale, making 6 full power, 5 movement against gravity and considerable resistance, and 4 movement against gravity and some resistance. He found that 50% of the gain occurred in the first month, almost all recovery in the first year, and only a very little in the next twelve months. There was no recovery of power after this period, although function might improve.

The upper limb recovered rather better than the lower, but the actual rate of recovery was equal for all muscles. He had evidence that the use of an abduction frame slowed the rate of recovery in the deltoid. In patients over 20 the recovery curve extended for a longer period. Any imbalance tended always to increase, the weaker group never catching up the stronger. In assessing the ultimate prognosis, Mr. Sharrard said that as a rough estimate one might expect improvement by 2 M.R.C. units to the grading at one month, by 1½ units to that at two months, by 1 unit to that at four months, and by ¼ unit to the grading at six months, the upper limb being about half a grade better than the lower. Of muscles graded 0 at one month 70% remained so, and this figure was 90% for those still graded 0 at four months.

During the afternoon of October 22 the association attended and greatly appreciated clinical and operative demonstrations given by the staffs at the following hospitals: Guy's, King's College, the London, the Middlesex, the Royal Free, St. Bartholomew's, St. George's, University College, the Westminster, the Hospital for Sick Children, and the Royal National Orthopaedic Hospital and Institute of Orthopaedics.

BRITISH X-RAY APPARATUS

[FROM A SPECIAL CORRESPONDENT]

A three-day exhibition organized by the British *x*-ray apparatus industry in conjunction with the annual congress of the British Institute of Radiology has just been held in London, the exhibits including machinery for radiotherapy and isotope treatment, as well as apparatus for radiodiagnosis. Most of the exhibits concerned the specialist, but some were of more general interest.

Recent Advances

Advances in radiotherapy are mainly concerned with attaining ever more penetrating radiation—now by means of linear accelerators and betatrons, and with apparatus for rotational therapy, where the source of radiation or the patient is kept constantly in motion, thus spreading the skin dosage over a wide area, and permitting a greater depth dose.

Radioactive isotopes were much in evidence, and ingenious devices for handling and monitoring were on view. Many laboratories, including Harwell, mounted displays of some of their work, including some remarkable films taken by the equivalent of two-million-volt *x* rays.

On the diagnostic side image intensifiers were shown by two firms, Marconi Instruments and Philips Electronic Tube Division (see also *British Medical Journal*, October 30, p. 1044), and cineradiography is now a practical proposition. A new and revolutionary electronically controlled generator is shown by General Radiological Ltd. This is a power unit capable of producing a film of an adult chest with an exposure of little more than 1/1000 second, and of repeating such exposures at intervals of 1/100 second. This may be of considerable value for rapid cardio-angiography and research involving ultra-short exposures. It may also simplify direct cineradiography (i.e., without the use of an image intensifier), as with a pulsed exposure the radiation dose may be greatly decreased.

Apparatus for photographing the fluorescent screen on miniature (35–70 mm.) film (" photofluorography ") has been much improved recently, and cameras using the Schmidt optical mirror principle, which has an " f " number equivalent of about 0.65, were on view. These cameras can take up to six films per second and may also be of considerable research value; the films are of very high quality. Lastly, the latest diagnostic tables were on show. These are yearly becoming larger, more complicated, and more expensive. A clinician inspecting this mass of shining machinery may reasonably wonder whether it really does improve the performance of the radiologist: after all, it is the user, not the machine, that needs to be polished.

THE SUPPLY OF BLOOD PRODUCTS IN SCOTLAND

The following information has been received from the Scottish National Blood Transfusion Association, 10, Duke Street, Edinburgh, 1.

A number of recent articles in the medical literature[1 2 3] have referred to special blood fractions available for clinical use. As the fractions distributed in Scotland differ in certain respects from those distributed in England an explanatory note about the availability in Scotland may be of value.

In Scotland, fractionation of plasma is carried out by a modification of the Cohn ethanol method in a Blood Products Unit at the Royal Infirmary, Edinburgh, operated by the Scottish National Blood Transfusion Association. Gamma globulin is supplied in unit quantities of 250 mg. in the form of 2 ml. of a 12.5% solution and the anti-haemophilic fibrinogen fraction as 200 mg. freeze-dried protein. To meet requests from clinical departments a number of special products are now being made available for the following uses :

Fibrinogen fraction for the treatment of afibrinogenaemia of pregnancy.[4] This is prepared in 1-g. doses and is manufactured and stored under conditions which will tend to preserve the anti-haemophilic activity, as these patients may also be deficient in antihaemophilic factor. The fibrinogen fraction is also available for cases of congenital afibrinogenaemia.

Dried fresh plasma for patients with clotting deficiencies. This product is prepared from newly drawn blood and is suitable for treatment of both Christmas disease and haemophilia. It is therefore of particular value in emergency situations where an exact diagnosis has not been possible.

Anti-rubella gamma globulin for prophylaxis of rubella in early pregnancy. This is prepared from plasma obtained from rubella convalescents. The recommended dose of this preparation is 250–500 mg. To maintain supplies of this product it is necessary to obtain blood donations from adult rubella convalescents within six months of the attack. The association will be most grateful if doctors in Scotland who know of rubella convalescents who may be willing to donate blood would inform the nearest Regional Blood Transfusion Centre.

Particulars of the unit doses in which the available fractions are supplied are given in the Table, together with references to the clinical application.

TABLE

Product	Use	Unit Quantity	Expiry*
Dried fresh plasma	Deficiency of plasma clotting factors[5]	18 g. freeze-dried protein (equivalent to 400 ml. plasma)	1 year
Antihaemophilic fibrinogen fraction	Haemophilia[6]	200 mg. freeze-dried protein	1 "
Fibrinogen ..	Afibrinogenaemia of pregnancy[4]	1 g. freeze-dried protein	1 "
Fibrinogen fraction	Congenital afibrinogenaemia[7]	200 mg. freeze-dried protein	3 years
Gamma globulin ..	Measles prophylaxis[8] Prophylaxis of infectious hepatitis[8]	2 ml. of 12·5% solution (equivalent to 250 mg. dried protein)	
	Agamma-globulinaemia[9]		2 "
	Poliomyelitis prophylaxis[10]	5 ml. of 12·5% solution (equivalent to 625 mg. dried protein)	2 "
Convalescent rubella gamma globulin	Rubella prophylaxis[11]	250 mg. dried protein	5 "

* All products require storage at +2° to 10° C. in a refrigerator.

Requests for gamma globulin for routine uses other than from hospitals in Scotland should normally be made through Medical Officers of Health and not to the Regional Transfusion Centres except in emergency. Hospital users may obtain supplies direct from the Transfusion Centres. Requests for fractions other than gamma globulin for measles prophylaxis should be made to the Regional Transfusion Centres.

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Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

Carcinogens in Cigarette Smoke

SIR,—With reference to your leading article in the *Journal* of November 20 (p. 1213), I should like to add to the information previously published[1-4] on the conditions of combustion of cigarettes and of chopped paper in the form of cigarettes. The author of your leading article states that it would be of interest "to know at what temperature the all-paper cigarettes were smoked and how long they took to smoke." I am now able to provide some information from very recent experiments upon the temperatures attained.

With Virginia cigarettes of a popular brand sold in this country we found the average temperature inside the burning cone to be about 650° C., and during suction the temperature rose by about 50° C. The temperatures were not significantly different when the thermojunction was inserted at different depths from the cigarette surface. The temperature of the surface at the burning end during suction was estimated at about 900° C. by using a disappearing-filament pyrometer. Throughout these experiments the cigarettes were burnt mechanically in the apparatus described elsewhere,[3] under the conditions of average human smoking.

With chopped paper "cigarettes" temperature measurements were more difficult to make owing to the irregularities of burning. However, the conditions were standardized so that the rate of combustion (weight/unit time) was the same as in the smoking of real cigarettes, and this involved burning three, each weighing about one-third of a gramme, in approximately the time taken to burn one tobacco cigarette. Average temperatures in the burning end were measured by inserting a thermocouple through the covering paper and smoking until the hot zone surrounded the junction. The highest temperature recorded within the hot zone during suction was 655° C. It was almost impossible to measure the swing of temperature from the quiescent state to the suction state because of the rapid rate of travel of the burning zone, but it is certain that fluctuations of temperature are greater during the combustion of paper cigarettes. The surface temperatures were estimated to be over 900° C. In conclusion it may be said that the temperatures attained in combustion of paper cigarettes are not greatly different from those in tobacco cigarettes.

If the proportions of combustion products from the paper cigarettes are the same as from the paper covers, which make up about 4% of this weight of real cigarettes, one may infer that the paper contributes about one-twentieth of the total 3:4-benzpyrene found in cigarette smoke. In support of this assumption recent experiments upon the smoke from Virginia tobacco taken from cigarettes and smoked in a pipe connected to the smoking machine indicate that the major proportion of 3:4-benzpyrene found in cigarette smoke comes from the tobacco.

Finally, some readers might assume that the amounts of benzpyrene present in cigarette smoke and in the urban atmosphere are both taken into the lungs of a smoker living in a town. This is, of course, not so; the analyses represent maximum amounts, and we were careful to make this clear in our original paper.[4] As yet there is very little information about the penetration of particles of different sizes and composition into the respiratory tract, and the fact that town smoke is inspired chiefly through the nasal filter, which tobacco smoke escapes, must always be borne in mind.—I am, etc.,

London, E.C.3. ARTHUR J. LINDSEY.

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Appendicectomy in Chronic Appendicitis

SIR,—I have been most interested to read the original article by Mr. Iain McLennan and Mr. J. Kennedy Watt (*Journal*, September 25, p. 736) on chronic appendicitis and the subsequent correspondence. The percentage of cures in adults in my own series of cases is very similar, while in children the percentage of cure is even higher. I agree that the results of operation in cases of the so-called appendix dyspepsia are most disappointing, as are those cases where the appendix is found at operation to be markedly fibrotic.

I would say, quite dogmatically, that chronic inflammation of the appendix gross enough to be visible to the naked eye is extremely rare. I am sure that the figures quoted, such as those of Shelley,[1 2] are very misleading. This may be due to the efforts of well-meaning and kindly pathologists who spend many hours searching the sections for any excess, however little, of fibrous and lymphatic tissue. I am quite certain that the commonest cause of abnormal physical signs and symptoms in these cases of "chronic appendicitis" is appendicular colic due to the presence of faecal concretions. Calcification of a faecal concretion must be extraordinarily rare, and therefore the term faecalith is a bad one. I am sure that kinks, adhesions, and fibrosis are relatively uncommon causes of symptoms. The association, in a relatively small number of cases, of symptoms of chronic appendicitis concurrently with those of spastic colitis suggests that there is a neuromuscular imbalance, neurotic or hysteric in origin, to blame.

The correspondence has shown quite clearly that opinion is sharply divided into two classes—those who believe that operation is justified if the history of the case and the physical signs suggest that there is evidence of "chronic appendicitis" and that this operation produces clinical cure, and those who suggest that most cases with symptoms of pain in the right iliac fossa are neurotic and that operation should not be entertained unless there is evidence of "disease" of the organ—a situation which is quite absurd when one realizes that it is impossible to diagnose a chronic inflammatory lesion of the appendix.

All that one can do as a surgeon in justification of an exploratory laparotomy in this type of case is to make repeated examinations and a thorough investigation to eliminate other causes of general or right-sided abdominal pain—a procedure which may involve weeks or months of time, but which is essentially necessary. These investigations may involve a complete check-up of the alimentary and genito-urinary tracts. In the majority of cases these investigations prove nothing, but the signs and symptoms persist.

Is one to deny the patient a laparotomy? I think not. The results of operation are so good, whether a normal appendix or an appendix containing faecal concretions is found, that operation is always justified when there has been done a complete investigation to eliminate other causes of abdominal pain. The results of operation bear no relation at all to the operative findings. If the signs and symptoms are caused, as I believe, in most cases by an intermittent mechanical obstruction, why should they? The gridiron incision in these cases is a thoroughly bad one; it should be replaced by either a pararectal or a paramedian incision.—I am, etc.,

London, W.1. F. W. M. PRATT.

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2 Ibid., 1938, **37**, 17.

Sensitivity to Penicillin

SIR,—Dr. W. J. S. Still (*Journal*, October 30, p. 1032) describes a severe anaphylactic reaction after an injection of crystalline penicillin, with acute abdominal symptoms which necessitated the resection of a length of small intestine. It seems possible that in the following case necrosis of a portion of bowel was due likewise to sensitivity to penicillin.

A 28-year-old woman, following a difficult first labour, received a course of crystalline penicillin (100,000 units by intramuscular injection four-hourly for three days). During the first five days

of the puerperium there was slight pyrexia up to 99° F. (37.2° C.) but no evidence of sepsis. The patient subsequently developed an acute retarded depression, and on August 18, 1952, the eleventh day of puerperium, was transferred to a mental hospital. Lactation had been suppressed with stilboestrol. On August 27 she developed pyrexia and a generalized macular rash. These symptoms were attributed to sensitivity to barbiturates, which were therefore discontinued. On treatment with diphenylhydramine the rash cleared up and the temperature fell to normal. On the morning of September 5 the patient's temperature rose to 101° F. (38.3° C.) without apparent cause. Crystalline penicillin was given intramuscularly (600,000 units over a period of 12 hours). That evening a macular rash was noticed, and penicillin was discontinued. Diphenylhydramine was again given. The rash, however, became more extensive and in places purpuric, and intermittent pyrexia persisted. Promethazine was therefore substituted for the diphenylhydramine, but without producing any change in the condition of the patient, who remained acutely ill. On September 11 she was noticed to be jaundiced, and laboratory investigations gave the following results: icteric index, 31 units per 100 ml.; thymol turbidity, 2.2 units per 100 ml.; plasma albumin, 2.8 g. per 100 ml.; plasma globulin 2.2 g. per 100 ml. On September 13 the patient was transferred to a general hospital. The following day she complained of abdominal pain. The abdomen was found to be distended and tympanitic; stools were loose and offensive and contained blood and pus. Aureomycin was given in a dose of 250 mg. six-hourly. On September 18, as there was no improvement, laparotomy was performed by Mr. C. Charleson. At operation the whole of the transverse colon was found to be necrotic and had to be resected, the cut ends being exteriorized. Examination of the specimen removed showed acute ulceration of the mucous membrane and intense inflammatory reaction in the bowel wall extending through to the peritoneal surface. Repeated gynaecological examination during the illness had shown no abnormality, and at operation the pelvic organs were found to be healthy.

The subsequent course of the illness was a stormy one, but ultimately the patient made a satisfactory recovery and colon continuity was restored. As the skin rash cleared, there was generalized desquamation and much of the scalp hair was lost. Her mental condition slowly improved, and by the end of December she was well enough to go home. When last seen on June 26, 1953, she was well.—We are, etc.,

HARRY STALKER.
W. M. WILSON.

Perth.

Methyl Chloride Poisoning

SIR,—Dr. M. M. Macrae (*Journal*, May 15, p. 1134) and Dr. J. Crawford (*Journal*, October 9, p. 870) have each recorded a case of methyl chloride poisoning, and Dr. R. G. Schulze (*Journal*, September 25, p. 756) has given an example of its explosiveness when mixed with air and ignited with a match. The following case, which, like Dr. Crawford's, also occurred in connexion with a refrigerator at sea, illustrates the gravity of the delayed central action and the speed with which it can develop and progress to a fatal result even after relatively mild primary symptoms.

At about 5.30 p.m. one evening in early 1941 I was called to see a naval rating who had come to the sick bay complaining of a headache. He told me that he had spent the day repairing the ship's refrigerator plant and that the headache had come on gradually during the afternoon; he also complained of feeling sick, but had not actually vomited. He was quite ready to carry on with his work if he could have an aspirin for his headache. He looked ill, however, and I examined him, but could find nothing organically wrong. I remembered noticing that his face was very pale, almost ashen in fact, and that his breath had a faint, sweetish, indefinable odour. I thought that his speech was slightly slurred, but, as I had never seen him before (I had joined the ship two days previously), I was not at all certain about this. I thought that he was probably suffering from the effects of a hard day's work in a cramped and possibly badly ventilated compartment following a party ashore the previous evening. I gave him his aspirins, but, because I did not like the look of him, I put him off duty and told him to come and see me the following morning. The following morning, however, he did not appear at the sick parade and I sent for him, only to learn that he had returned to work on the refrigerator plant. He told me that his headache and nausea were better, but to me he looked very much worse. His breath still had the odour of the previous evening, which I still could not place, but I was now fairly certain of the slurring of his speech. I thought he was also slightly unsteady on his feet, but again I could not be sure of this because of the motion of the ship. I remember noticing at the time that his general appearance was as though he was slightly drunk, and I was by then fairly certain that this was caused by the inhalation of the refrigerant gas, which I was informed was methyl chloride. I kept him off duty and told him to stay on the upper deck in the fresh air, but I was not, even then, unduly worried about him.

After I had seen him I looked at the refrigerator plant, and, on entering the compartment, I noticed the same sweetish odour that I had smelt in the patient's breath, but it was so faint that it would obviously become unnoticeable after breathing it for a short time. I imagined that methyl alcohol was used in the commercial preparation of the chloride and that it was the vapour of this that I was smelling, and I assumed, erroneously, that this accounted for the slurring of speech and the unsteady gait. About two hours later (about 12.30 p.m.) I was called urgently to see him again. I found him comatose, and while I was examining him he began to convulse. From then on, in spite of everything, the convulsions continued with increasing frequency and severity. His coma gradually deepened and he died about 4.30 p.m., just after arrival in hospital ashore. I subsequently attended the necropsy, but I cannot remember anything abnormal being found apart from capillary engorgement throughout. I subsequently, however, learned that the pathologist had found considerable amounts of methyl chloride in all the organs sent to him for examination.

What struck me forcibly at the time was the speed with which it all happened and his relative absence of early symptoms. He died less than 24 hours after his first symptoms, and even two hours before his loss of consciousness he had told me that he felt better and had indeed been at work again. His looks, however, belied his statement, and I believe that a less conscientious man than he would have been glad to have stayed off work, particularly when ordered to do so. I think he must have had a lethal dose before I saw him first, and his return to the refrigeration plant the following morning probably did not affect the fulminating onset, except perhaps to hasten it.

I agree strongly with Dr. Macrae that this is a most dangerous substance. I would point out, however, that the Admiralty were aware of its danger and had laid down certain precautionary measures to be adopted when work was going on in refrigerator plant compartments. Dr. Crawford's case and the one I have recounted, however, show that familiarity with this gas is liable to breed contempt, and if precautions are not heeded tragedy may result. The facts mentioned herein are published by permission of the Medical Director-General of the Navy.—I am, etc.,

T. T. BAIRD.

Twyford, Berks.

World Population

SIR,—I beg to differ from the views of Mr. G. K. McKee (*Journal*, November 6, p. 1104). Surely "love" can only make the problem worse. What we need and have not got is *wisdom* to use the pack of power which science has all of a sudden dumped on our hands. We "love" the backward peoples. Therefore we cannot withhold from them the benefits of preventive medicine, the semi-prevention perhaps I ought to say, which we practise in the West. And the result has been to set spinning the king-pin of all the vicious spirals which bedevil the life of economic man—over-population. There is no virtue in mere numbers. Look what over-population has already done to England, the land we *love* so well. Towns unique in beauty have been submerged in "built-up areas"; lovely rivers poisoned; our incomparable harbours and coastal waters polluted. Agriculture has hardened into food production. Why, even those few rabbits which escaped last summer's blitz must now be rubbed out by law because they eat our food. Yet we ourselves are scratching whole counties away just to gain a bit of expendable coal. In short, the very word "development" has come to mean destruction.

And now this industrial fever has spread throughout the world. The "big game" will have to go to make room for men. Insects are "pests"; they must be sprayed. Thus the sequences of food for "lower" animals will be broken. And thus, given incredible luck, we humans may go on increasing till the cry goes for "standing room only." But

far more likely the cataclysmic crash will come quite soon, unless we can learn even at the eleventh hour the superhuman task of providing a way of life at least as good as the primeval laws of nature. Mr. McKee quotes Scripture. Let him turn to the opening words of the Bible, where it is written that God made the heaven and the earth "and saw that it was good." Parsons keep reiterating "people matter" when to-day if we are to avoid messing up the whole world the emphasis should be on *things*.—I am, etc.,

Buxted, Sussex. W. R. E. HARRISON.

Is Juvenile Drunkenness Increasing?

SIR,—Mr. L. R. N. Percey's spirited attack (*Journal*, November 13, p. 1167) is welcome. It is, however, not possible to make out from present statistics whether juvenile drunkenness is or is not increasing. In a few years' time this may be possible, since the Home Department[1] has now, for the first time, broken down the numbers of "offences of drunkenness proved"—i.e., convictions—according to age. The age groups given are: (1) under 21; (2) 21 and under 30; (3) 30 and under 60; (4) 60 and over. In 1953 there was in the whole of England (urban and rural) a total of 51,900 convictions for drunkenness in the population aged 15 years and over. Of this total, the above age groups yielded in per cent.: (1) 5.6; (2) 25.8; (3) 60.4; (4) 8.2. Naturally there are wide local variations, according to whether urban or rural, north or south, industrial or non-industrial, and a host of other circumstances. In Plymouth, for instance, the under 21's yielded 2.9%, in Portsmouth they yielded 14.2%.

	Convictions for Drunkenness, 1953		Percentage of Total Number in Age Groups			
	Total No.	No. per 10,000 Population Over 15 Years	Under 21	Under 30	Under 60	60 and Over
All cities and boroughs England (excluding Metropolitan Police District and London City)	23,400	24·9	6·8	29·5	56·8	6·9
Metropolitan Police District and London City	18,976	28·7	2·5	18·7	67·7	11·1
Bradford	680	30·1	2·8	20·3	65·0	11·9
Plymouth	174	10·0	2·9	16·7	67·8	12·6
Birmingham	4,120	48·3	4·5	29·2	60·1	5·1
Newcastle	1,517	67·6	4·7	30·1	60·1	4·1
Sheffield	503	12·6	4·8	28·8	59·7	6·7
Bristol	98	2·8	5·1	21·4	63·3	10·2
Manchester	2,203	40·8	6·3	30·4	54·5	8·8
Leeds	1,142	28·9	7·0	26·8	57·7	8·7
Liverpool	3,720	63·3	9·5	30·2	52·5	7·9
Hull	631	28·4	12·0	31·4	50·2	6·3
Portsmouth	480	24·7	14·2	39·4	37·5	9·0

In order to have a basis for future comparison I have tabulated comprehensive figures from 12 cities with a population of over 200,000. We must not overlook, however, that deductions drawn from convictions are fallible, since these figures denote not existing but *obtrusive* drunkenness; further, that it is "the man in the street" rather than the population at risk that yields the bulk of these convictions.—I am, etc.,

Isleworth, Middx. H. PULLAR-STRECKER.

REFERENCE

[1] *Offences of Drunkenness*, 1953. H.M.S.O.

Prevention of Colds

SIR,—May we reply to some of the points raised in the correspondence which has followed the publication of our paper (*Journal*, October 23, p. 959)?

Temperature of vaporization.—Like those of Dr. I. MacKay (*Journal*, November 20, p. 1228) and Dr. C. Dickson (*Journal*, November 6, p. 1108), our vaporizers were supplied by Shepherd's Aerosols, and the thermostats were stated by them to be set at 126° C.; actual measurements showed the liquid itself to be held at about 116° C. *Concentration.*—The output of our vaporizers was, as stated in our paper, at the recommended rate. Neither Dr. MacKay, Dr. Dickson, nor Mr. A. H. Baker (*Journal*, November 13, p. 1163) has ever reported any measurements of the concentrations actually produced in the air, and none of them has made any allowance in his calculations for loss of hexylresorcinol by adsorption on to walls, etc. *Bactericidal effect.*—None of these three workers has reported any effect of hexylresorcinol on the normal flora of the air. There is no discrepancy between our results and Dr. MacKay's experiments with sprayed cultures; in fact laboratory experiments reported by one of us in 1948[1] gave substantially similar results to those subsequently reported by him. *Morbidity.*—None of the three has made a direct estimate of the comparative number of colds *suffered* by persons working in treated and untreated rooms; Dr. Dickson analysed only sickness absence records, which we consider an unsatisfactory measure of morbidity, for reasons stated elsewhere.[2]—We are, etc.,

O. M. LIDWELL.
London, N.W.9. R. E. O. WILLIAMS.

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Death after A.C.T.H.

SIR,—With the wider use of A.C.T.H. a number of deaths immediately following the use of this drug, and presumably due to anaphylaxis, have been reported.[1 2]

Case Record.—A housewife, aged 44, had had asthma for 12 years, exacerbated by winter bronchitis. Since 1948 she had had repeated courses of specific vaccines. She had angioneurotic oedema as a child. Mother, sister, and grandfather all had asthma. Her present attack commenced six weeks before admission, and had been continuous since. She was said to have previously reacted "badly" to penicillin, ephedrine, adrenaline, and isoprenaline sulphate. Examination on admission showed her dyspnoeic on slight exertion, wheezy, but not cyanosed. Blood pressure 170/110, pulse 90, regular. Scattered rhonchi and much bronchospasm in all lung fields. Chest *x*-ray, taken immediately on admission, was normal. A.C.T.H. 20 units intramuscularly was commenced on the morning of July 31. Within two minutes of receiving the first injection (into the outer side of her thigh) she complained of tingling in her fingers and toes; a minute later of a tight feeling across her chest. She very rapidly became orthopnoeic, distressed, and cyanosed, and died within five minutes, before medical aid could be summoned. Post-mortem findings were in keeping with status asthmaticus with some allergic oedema (Dr. F. E. Camps).

We feel it our duty to report this case, as it is only by the publication of similar disasters that the risks of anaphylaxis from intramuscular A.C.T.H., which is so widely given, can be assessed. Since this incident, we have treated suitable cases of status asthmaticus with cortisone by mouth in place of A.C.T.H., unless emergency and inability to take tablets demanded otherwise.—We are, etc.,

ARNOLD BLOOM.
London, N.19. FREDERICK WOLFF.

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[1] Hill, B. H. R., and Swinburn, P. D. (1954). *Lancet*, 1, 1218.
[2] Howat, H. T., mentioned by Savidge, R. S., and Brockbank, W. (1954). *Ibid.*, 2, 893.

Changes in the Mental Health Services

SIR,—It is interesting to see that the L.C.C. is proposing to recommend to the Royal Commission the perpetuation of the observation unit. I spent many years in the L.C.C. mental health service and had first-hand knowledge of two of their units, and heard from many patients harrowing comments on all the others, and I have always thought that the observation unit was, and is, the weakest link in the administrative set-up for the mentally sick. The reasons for this, as I see them, are as follows: (1) Observation units form part of general hospitals, and are usually administered as a sideline by persons with little psychiatric knowledge, and not always with proper sympathy for the problems of the mentally ill. I have more than once heard the remark from these quarters, "After all, they are only lunatics." (2) Their staffing—medical and nursing—is rarely of the best for the purpose, and often a long way below it; one could hardly expect to get the fullest satisfaction from spending one's working life in a casualty clearing station.

(3) They are more often than not overcrowded, and seldom have suitable accommodation to allow of proper classification—manics, schizophrenics, acute alcoholics, confusional cases, and neurotics lying cheek by jowl.

At the onset of a psychiatric illness a high proportion of patients who have to be removed from their homes are frightened and confused; this fear and confusion tend to be aggravated by every move, and I think it should be a first principle to ensure that the patient, wherever possible, is sent from his home direct to the hospital where he will be treated. This might be effected by an extension of domiciliary services combined with an increased use of the "urgency order." The avoidance of certification would be simply brought about by suitable modification of Section 5 of the Mental Treatment Act, and omission of the phrase dealing with absence of volition. The alternative proposal of up-grading observation units, or preferably their replacement by first-class treatment centres, would, I fear, be unnecessarily prodigal in building, staffing, and maintenance costs.

Finally, what's in a name? If it be true that progress is made by a simple change, would it not be well to legislate for this by insisting on a change of name for all the hated terms every 10 or 15 years? This would doubtless prevent popular opprobrium from falling in the future on any psychiatric patients, places, or personnel.—I am, etc.,

Beaconsfield, Bucks. J. B. S. LEWIS.

Prevention of Deformity in Poliomyelitis

SIR,—I read with interest the paper of Mr. J. M. P. Clark entitled "The Prevention of Deformity in Poliomyelitis" (*Journal*, September 18, p. 669). With your permission I would like to comment on some of the points he raises.

In my experience the all-important factor of growth makes it imperative to deal surgically with an established muscle imbalance in a child suffering from the sequelae of poliomyelitis as quickly after the onset of paralysis as is physiologically feasible, in order to prevent the inevitable development of dynamic deformities. The younger the child at the onset of paralysis, the sooner the deformities develop and the more pronounced they tend to become. This factor of growth does not exist in the paralytic adult. Hence such an urgency of surgical correction does not exist. In the poliomyelitis epidemics in Israel from 1949 onwards the overwhelming majority of victims were in their first, second, or third year of life. We have been operating on these children since 1951, before they reached the age of 5 years suggested by Mr. Clark, and we are convinced that had we waited until this age a large majority of our patients would have presented established deformities, and surgery then would have become reconstructive and not preventive. In these children we have performed 173 tendon transplantations around the ankle alone since 1951; 83 of them were done anteriorly to the ankle-joint and 90 posteriorly (into the Achilles tendon and/or calcaneus). A more detailed breakdown is presented in the following table:

Age at Operation in Years	Tendon Transplantations		Total
	Anteriorly to the Ankle	Posteriorly to the Ankle	
0–1	0	2	2
1–2	5	12	17
2–3	26	28	54
3–4	21	18	39
4–5	21	11	32
Over 5 ..	10	19	29
Total ..	83	90	173

With the exception of a few cases these children responded very quickly to re-education of the transplanted muscles. It is true to say that in many instances less difficulty was encountered in this re-education than in older children. This experience of ours prompts me to say that there is no reason to postpone tendon transplantations (at least around ankles) in children under the age of 5 years. In discussing the advisability of breaking down a "tight fascial envelope of the thighs and buttocks," Mr. Clark does not appear to differentiate between a child and an adult patient. While in an adult the existence of such a tight fascia may add considerably to the stability between pelvis and lower extremities without causing an appreciable deformity, in a growing child the persistent presence of tightness will inevitably lead to development of deformities of pelvis, spine, and lower extremities. It therefore seems to me preferable to break down the tight fascial envelope and supply the child with a much more innocuous external splint.

With regard to "Perverted Action of Normal Tendon": this syndrome is well illustrated in Mr. Clark's first example. The tibialis posterior, flexor hallucis longus, flexor digitorum longus, peroneus longus, and peroneus brevis ("all posteriors" as we used to call them) are accessory plantar flexors at the ankle. When the prime mover—the triceps surae—becomes paralysed and the strong tibialis anterior lifts the midfoot, all posteriors by reason of their attachments to the midfoot and the bases of the metatarsals cause the forefoot to plantar flex at the midfoot joints, thus pressing the forefoot against the hindfoot. They consequently indirectly cause an increase of the vertical position of calcaneus and pes cavus. Under the changed kinesiological conditions caused by the paralysis of triceps surae, the actions of these accessory plantar flexors, the all posteriors, become "perverted."

The other example in Mr. Clark's paper of perverted action of normal tendon, "The action of the extensor digitorum longus tendons and peroneus tertius on a valgus foot resulting from a weak tibialis posterior," is a less good example, as these muscles are antagonists to each other, tibialis posterior being an invertor and plantar flexor of the foot and extensor digitorum longus being an evertor and dorsi-flexor.

The "bow-string" action of extensor digitorum longus, demonstrated by us to Mr. Clark during his recent visit (March, 1954) to my department, resulting in valgus deformity of the foot is initiated by paralysis of tibialis anterior. In the presence of additional paralysis of tibialis posterior the "bow-stringing" of extensor digitorum longus becomes more pronounced. It becomes very prominent when, in addition to paralysis of tibialis posterior and tibialis anterior, the triceps surae is weak.—I am, etc.,

Zrifin, Israel. ANATOL AXER.

Epithelioma Due to Tar Ointment

SIR,—Dr. J. O'D. Alexander and Mr. K. I. Macrosson should be commended for calling attention to the possibility of squamous-cell carcinoma being caused by tar ointment (*Journal*, November 6, p. 1089). I would suggest, however, that their report calls for some comment. Most importantly, their statement, "Cases of tar epithelium of industrial origin are almost invariably accompanied by a pronounced tar acne which has been present for years," is open to criticism. It may have been true when Professor White was writing 25 years ago, but it is not true to-day. I have seen many such epitheliomata: not one was accompanied by severe folliculitis, and most of the patients had no folliculitis at all.[1] The statement that folliculitis is a necessary or even a usual precursor of tar cancer is not only false but dangerous, because it can lead (and to my knowledge has led) to a diagnosis of cancer being missed. Indeed, Dr. Alexander and Mr. Macrosson state that tar ointment is dangerous (only) "if it is accompanied by tar acne." The statement: "It seems that the continued insult to the skin, after the initial appearance of signs of tar irritation, is the essential factor in the production of malignant change" would not, I think, be generally accepted. Tar cancer is not caused by irritation in any ordinary sense of the word. It would be as accurate to describe the action of stilboestrol in causing male mammary enlargement as an irritation.

The authors are of opinion that the epithelioma they report was caused by tar ointment. This may be possible, but, if it was so caused, it followed the shortest exposure of which there is any reliable record: thus Henry[3] gives ten months as the shortest exposure in 1,335 cases. Most of his cases occurred after 20–24 years. Winternitz[3] and Ross[4] both give eighteen months as the shortest exposure in their respective series. The site of the lesion, over the head of the right fibula, would also be unusual, because it is well recognized that the unexposed skin (except that of the scrotum) is very resistant to tar cancer.[5, 6]

The authors, however, state: "In contrast to the *superficial splashing of the skin* in industrial tar acne, in this case

the offending tar product was actively rubbed into the skin" (my italics). They rely on this presumed heavier exposure to explain the very short period before the development of the lesion, and also, presumably, its odd situation. In fact, of course, those of us who are closely familiar with the conditions of heavy industry are well aware that a tar worker must often be exposed to much more than superficial splashing of tar. The tar is not rubbed into the skin with the tip of the finger for a few minutes, it is grimed in by heavy friction of tools, the friction of his clothes, the pressure of loads he carries, and in a dozen other ways. If an explanation for this epithelioma must be found I would suggest, in the absence of more information, that exposure to solar radiation while wearing shorts in Africa is a more probable cause (albeit a highly unlikely one) than exposure to tar.—I am, etc.,

London, N.1. R. E. W. FISHER.

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2 *Brit. J. Radiol.*, 1947, **20**, 149.
3 Ibid., 1947, **20**, 158.
4 *British Medical Journal*, 1948, **2**, 369.
5 Hueper, W. C. (1942). *Occupational Tumours and Allied Diseases*. Springfield, Illinois.
6 Fisher, R. E. W. (1953). *Arch. industr. Hyg.*, **7**, 12.

Acute Diffuse Lupus Erythematosus

SIR,—The case reported by Drs. H. L. Matthews and M. J. Meynell of acute diffuse lupus erythematosus with predominant pulmonary manifestations (*Journal*, November 13, p. 1140) is unusual in that the patient was a young man and his illness started with what seemed a pleuropulmonary infection; the serum proteins showed a normal distribution and there was no leucopenia. The diagnosis was based on three facts: (1) "L.E." cells were found in his peripheral blood after five months' illness (and as many months' treatment with different antibiotics, penicillin, sulphonamides, chloramphenicol, streptomycin, more and massive penicillin, and, finally, oxytetracycline); (2) the patient developed a scaly, papular haemorrhagic skin rash; and (3) the histological study of a skin biopsy was "considered to show some early characteristics consistent with those found in lupus erythematosus."

I think that two points should be made concerning the criteria of diagnosis of diffuse or systemic lupus erythematosus, as the condition is undoubtedly being seen with increasing frequency. Since the recognition of the "L.E." cell some ten different techniques have been described for its production, and it is important for the particular technique used in any clinical report to be mentioned by name. Hargraves[1] in a recent study has drawn attention to the possibilities of "false positive." He describes a two-hour blood clot technique in which he believes these falsely positive results may be reduced to a minimum. He believes that nucleolysis is the important finding rather than nucleophagocytosis, which may be seen in several other conditions and has led to erroneous diagnoses. With regard to histological study of skin biopsies it has been firmly established[2] that characteristic skin changes are quite infrequent, and minor deviation from the normal dermal architecture does not provide a reliable means of supporting a diagnosis of diffuse lupus erythematosus. Fibrinoid changes of collagen, the presence of haematoxylin staining bodies, or other changes characteristic of systemic lupus erythematosus in other tissues are all most rare in the skin.

There is no question of disputing the diagnosis of Drs. Matthews's and Meynell's patient, but I would stress that the "L.E." cell test should be performed most critically—and skin biopsies may be regarded with interest rather than used as support for a possibly insecure diagnosis. It has been said that this disease has now replaced syphilis as the great imitator. Let us be sure that our diagnostic tenets are as reliable as the Wassermann and Kahn reactions.—I am, etc.,

London, W.1. STEPHEN GOLD.

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2 Montgomery, H., and McCreight, W. G. (1949). *Arch. Derm. Syph.*, **60**, 356.

Endocardial Fibrosis

SIR,—There is one statement in your interesting leading article on endocardial fibrosis (*Journal*, October 16, p. 920) with which I wish to register disagreement. You state: "Little attempt has been made to link the endomyocardial fibrosis found in adults with that which has been well recognized in infants in recent years, yet the pathological findings are strikingly similar." I have observed now more than 100 cases of endomyocardial fibrosis, both children and adults. In various centres I have been allowed to examine more than 50 hearts with the endocardial fibroelastosis of childhood, the largest group being 23 cases studied in the Children's Hospital of Pittsburg through the kindness of Dr. G. Fetterman. In my experience there is very little similarity between these two conditions, endomyocardial fibrosis and endocardial fibroelastosis, whether occurring in childhood or in adult life.

Thus, in fibroelastosis there is a proliferative lesion of the endocardium with marked elastosis. Mural thrombus, when it occurs, seems to be a secondary lesion, not an essential part of the process, though it may undergo organization. There is a frequent association with cardiovascular developmental anomalies, especially with lesions of the aorta. The aortic valve is frequently affected, as is the mitral, but they do not become cemented to the wall by organizing fibrous tissue. Finally, in fibroelastosis it is the outflow tract endocardium which seems to bear the brunt of the damage. In the left ventricle the lesions are most frequently seen between the aortic valve and the apex. In endomyocardial fibrosis, on the other hand, it is very uncommon to find any elastosis, the lesion is a destructive one rather than a proliferative one, and mural thrombosis seems to be an essential part of the process. Other cardiovascular anomalies are rarely seen, and the inflow tract is the region of the ventricle most frequently involved, the area between the apex and the aortic valve being much less frequently affected. The aortic valve is rarely, if ever, damaged, and the mitral and tricuspid valves are damaged by their posterior cusps being cemented to the mural endocardium and buried in fibrous tissue.

A recent paper from Boston[1] records a study of fibroelastosis in children and adults, and compares the lesions seen with those observed, by the same observers, in three hearts with endomyocardial fibrosis sent them from Uganda. Their conclusions are much the same as those I have come to hold. I therefore cannot accept either clause in the statement quoted in your leading article.—I am, etc.,

Kampala, Uganda. J. N. P. DAVIES.

REFERENCE

1 Thomas, W. A., *et al.* (1954). *New Engl. med. J.*, **251**, 327.

The M'Naghten Rules

SIR,—It is an axiom of psycho-chemistry that the heat generated by an argument bears an inverse relation to its substance. Small wonder then that people have been burned on the stake in the course of the age-old controversy on predestination. Neither will nor freedom can be accurately defined. In discussing the relationship between these two doubtful concepts your correspondents are really trying to answer the following question: Having acted in one way, could we act differently if placed once more in the *identical position*? To answer this question the action must, at the same time, have happened and not have happened—that is, the question is by definition unanswerable. It is therefore a question only in a grammatical sense. Philosophically it is no better than a noise with a question mark attached. The persistence of this futile argument throughout the ages has interesting psycho-physiological reasons which need not be discussed at the moment. In spite of vulgar opinions to the contrary, science is not wedded to one or the other of these two imaginary viewpoints. Science is concerned with reproducible phenomena and not with any abstract notions that might be derived from their reproducibility. The theorems of modern physics, if they had the slightest relevance to this problem, which they have not, would merely tend to

show that our actions, so far from being free or predetermined, are in reality subject to the laws of chance.

That adolescents should be attracted to this kind of conundrum seems a natural stage in the process of mental maturation; that theologians love to indulge in these arguments is only natural, since they enjoy the charming privilege of being able to decide any argument in their own favour by an act of faith; but when the leaders of medicine—that is, a profession which should be compounded of science and common sense—waste time and temper on a quarrel about free will, one realizes with a blush that it may, after all, not be impertinent to point out that the imaginary answer to an unreal question cannot be of the slightest practical help in solving the real problems of the administration of the law.—I am, etc.,

Edinburgh. ERICH GEIRINGER.

SIR,—The difference between medical and legal views on the M'Naghten Rules will never be settled so long as medical men are confused about the principles of English criminal law. An outstanding example of this is seen in Dr. W. A. O'Connor's letter (*Journal*, November 13, p. 1164), where he says: "As Dr. Slater knows only too well, the legal mind is restricted in its thinking by the strait-jacket of formal logic." In fact, the theory of logical consistency and rational development of the law has always been rigorously excluded from the common law of England. A judge said recently[1]: "We have in England a deep distrust of logical reasoning and it is for the most part well founded. Fortunately judge-made law has seldom deviated into that path, but on the rare occasions it has done so the results have been disastrous." This lofty disregard for logical system is sometimes looked upon as an eminently Anglo-Saxon prerogative.[2] It would be interesting to know the authority for Dr. O'Connor's statement and, in particular, why it was coupled in such a way with the name of Dr. Slater, for it must appear obvious from Dr. Slater's article (*Journal*, September 25, p. 713) that his attack on the M'Naghten Rules is based almost entirely on logical reasoning.

A complete contrast is presented by the view of the common lawyer who reasons pragmatically and is influenced above all by the possible practical consequences of a change in the law. He knows very well that psychiatrists are not infallible, that they often disagree among themselves, and that in many cases where the plea of insanity is raised the defence has to approach several doctors before one can be found willing to find the prisoner insane. He apprehends that many criminals have the possibilities of "diminished responsibility" in mind and has only to point to the various statements of criminals after arrest—for example, "It will be mental, won't it?" at the end of the Whiteway confession.[3] In fact the attitude of "not my fault" is becoming widespread, as we all know. Recently a patient of mine was charged with indecently assaulting a small girl: the evidence was overwhelming, and he lost no time in coming to my surgery to ask for a medical certificate to say that it was not his fault as he "couldn't help it."

If Dr. Slater's logical reasoning is objectionable to the common law, it does not follow that the civil law countries will be similarly inhibited, and it comes as no surprise when he directs our attention to Sweden, where "psychiatrists act as counsellors in the courts—that is, as subsidiary judges and aids to the trial judge himself." Further, "Medical opinion almost always prevails in the courts, but its effect is often to add to any sentence of punishment." Before we applaud these remarks we should do well to appreciate just how formidable is the effect of medical evidence in Scandinavian courts. This is well illustrated by paternity cases in Denmark,[4] where a man standing accused is required to be blood-grouped (failure to comply involves detention in prison for six months as a material witness). If the woman refuses to admit intercourse with any but a blood group incompatible man, she is liable to be sent to prison for perjury. The preponderance of psychiatrists on Scandinavian medico-legal councils is remarkable (three out of seven in Denmark).

Finally, some correspondents have made much of the difficulties of proving "intent" and "motive" as constituting *mens rea*—for example, Dr. Felix Brown states, "It [*mens rea*] is basically unsound in theory because its application depends on what was the intent of the criminal at the time he committed the crime, a thing which not even the criminal himself knows" (*Journal*, November 20, p. 1227). These difficulties are non-existent, for intention denotes the state of mind of the man who not only foresees but *desires* the possible consequences of his conduct,[5] whereas the test of *mens rea* at common law is merely advertence. Intention and motive are only of importance in so far as they go to show that the man must have adverted to the consequences of his conduct, and so *mens rea* may be (and frequently is) established without any proof of intention or motive, as where a man foresees the possible consequences of a certain line of conduct and yet pursues it without caring whether or not the consequences will develop—that is, he is "reckless."[6]

Whilst, as medical men, we may find much to criticize in the law relating to the criminal responsibility of abnormal persons, it is as well to remember that the English system of criminal justice commands the respect and envy of jurists all over the world. It follows that we should pay our criminal law the compliment of understanding it before we attack it.—I am, etc.,

Lowestoft. JOHN HAVARD.

REFERENCES

1 Judge Konstam (1944). *Law Quarterly Review*, **60**, 232.
2 Lloyd, D. (1948). Ibid., **64**, 469.
3 *Criminal Law Review*, 1954, 183.
4 Gormsen, H. (1954). *Med.-leg. J. (Camb.)*, **22**, 52.
5 Turner, J. W. C. (1936). *Cambridge Law Journal*, **6**, 31.
6 Edwards, J. Ll. J. (1954). *Modern Law Review*, **17**, 303.

*** This correspondence is now closed.—ED., *B.M.J.*

Flourpaper Tuberculin Jelly Test

SIR,—Anent Dr. W. H. Tattersall's letter on tuberculin testing (*Journal*, November 6, p. 1105), jelly, and Heaf gun, I would like to mention my own experience with these tests. The announcement by the Department of Health for Scotland in 1949 of a scheme for B.C.G. vaccination gave one a splendid opportunity to extend the use of tuberculin testing of schoolchildren, since now one had something to offer as bait for the privilege of being allowed to carry out investigations. Parents were anxious to have their children protected against tuberculosis, so all scholars in the island were tested by means of the jelly test; all non-reactors were Mantoux tested 100 T.U., and B.C.G. offered to non-reactors to this. To date 3,000 have had B.C.G. The jelly test was easy to do and devoid of the pain—real or imaginary—of the Mantoux; but interpretation of the results sometimes caused difficulty. Of 4,800 tests in 1949, 276 gave doubtful positives, and these (since B.C.G. was being offered) were (along with the negatives) Mantoux tested 100 T.U., and some 18% proved to be non-reactors: the percentage would have been higher had 10 T.U. been used. It will thus be evident that the jelly test alone is not accurate enough to diagnose tuberculous infection, as Dr. Tattersall says. This, be it noted, is with one person carrying out the whole procedure—cleansing, application, and reading.

In 1952 Professor Heaf visited Lewis and demonstrated his multiple puncture apparatus. A "gun" was procured from Messrs. Allen and Hanburys and comparative tests were carried out on all classes of children—known positives, known negatives, and on some who had had B.C.G. and had been proved converters. At the same time Mantoux tests of 1 T.U., 10 T.U., 100 T.U. were done in the appropriate case. On every occasion where the Mantoux was positive the multiple puncture Heaf test was likewise positive.

During the school year 1953–4 about 10,000 tests by multiple puncture have been carried out with no ill effects. To do a class of 40–50 scholars took only 5–10 minutes. The infants came out in groups of six, stood in a semicircle holding each other's left hand—the sleeve was rolled up, the forearm cleansed with spirit acetone mixture then dried, a drop of P.P.D. 2 ml. per mg. from a dropper was placed in position, the child's forearm was grasped in the operator's left hand and the skin stretched taut, the "Heaf gun" pressed on the drop and slightly moved to spread the P.P.D., the pressure on the gun increased and the spring released (in the case of babies it is most important to make sure that the gun is "square" and that pressure is firm so that all six needles penetrate the skin to the same depth—this latter can be set at 1 mm. or 2 mm., as the relatively greater curvature tends to restrict the flat surface).

The advantages of the Heaf multiple puncture apparatus are simplicity of performance, speed, absence of pain, ease of interpretation, reliability, and absence of severe reactions even in persons sensitive to 1 T.U. In the case of non-contacts who are negative B.C.G. can be given the same day as the reading—i.e., 3 to 7 days after testing. To one working alone, as here, this is a great boon.

The Heaf apparatus has been used to administer B.C.G., and if the trigger is pulled 20 times (making 120 pricks by moving the gun slightly each time) the conversion rate is high. If one could have the vaccine intended for multiple puncture, then releasing of the spring twice might suffice. In this way B.C.G. could be rapidly and easily given with no upset whatsoever. I have colour films showing the local multiple puncture B.C.G. reaction, and also the conversion reaction four weeks later, and others showing the persistence of allergy after 18 months.

The following data might be of interest:

	Cases of Tuberculosis
B.C.G.: 3,000 (duration 4 years to 1 year)	—
Positive: 1,188 (1949 survey) ..	29 (22 pulmonary, 7 non-pulmonary)
Negative: 2,814 (1949 survey) ..	9 (8 pulmonary, 1 non-pulmonary)

These are not selected groups in any way.

With 50% of notified cases, 251 out of 503 since January, 1945, yielding positive sputa, all these children have run equal risks, so that B.C.G. would appear to be of value.—I am, etc.,

Isle of Lewis. R. STEVENSON DOIG.

Spontaneous Rupture of the Spleen

SIR,—Mr. B. A. Thompson describes an interesting example of "spontaneous rupture of the spleen" in association with a perforation of a high gastric ulcer (*Journal*, November 20, p. 1209). May I draw his attention to a very similar case which I described briefly in your *Journal* (1949, **1**, 1082)? The two patients are alike in age, in the time interval between perforation and operation, and in the location of the gastric ulcer. I have discounted the possibility of digestion of the splenic capsule by gastric secretions, and believe in such cases the trauma may be the severe initial muscle rigidity and the minimal pathological change an arteriosclerotic condition of the splenic vessels.

In conclusion, I believe that the term "spontaneous" rupture of any organ should be reserved for rupture occurring in the absence of severe or definite trauma and in the absence of gross pathological change. With this definition the rupture of a malarial spleen from minor injury does not come into the category of spontaneous rupture.—I am, etc.,

Liverpool, 7. JOHN A. SHEPHERD.

Partial Gastrectomy

SIR,—Professor Charles Wells and Mr. I. W. MacPhee (*Journal*, November 13, p. 1128), while proving how complete, unconditional, and permanent is the relief given by partial gastrectomy to most sufferers from peptic ulcer, also indicate that the few patients with unsatisfactory results are mostly those who have had high resections, especially of the Polya type. There has been a dilemma with one horn that of low resection with a better functional result but more recurrent ulceration, and the other horn that of high resection with no recurrence but possibly producing a dizzy, "Belsenized" bile-vomiter. But there is a means of blunting these horns, I believe. A Billroth I resection will give an excellent functional result, especially if only half the stomach is taken, and vagotomy with half resection may ward off the chances of recurrent ulceration. To this measure the authors give their future hopes, and I join with them in wishing it well.

They refer to 25 patients operated on three years ago, using the technique of limited partial gastrectomy with vagotomy, but they do not specify which type of anastomosis was made. Johnson and Orr[1] record 236 partial gastrectomies with vagotomy and indicate that the resection was about two-thirds in extent and evidently of the Billroth II variety. In an article to the *Journal* (May 22, p. 1186) I indicated that I was engaged on a series of Billroth I style of resection for duodenal ulcer, removing the ulcer and adjacent duodenum, and half the stomach only, and adding vagotomy, hoping thereby to overcome the reduced capacity for the main meal in the early months after operation, to give a good functional result and an absence of recurrent ulceration. Now that support for this procedure is forthcoming, I venture to indicate how my own series is progressing.

I started this plan in April, 1951, at first using it for male patients under 50 with duodenal ulcer, but just a year later adopted it for all patients with duodenal ulcer. By the end of 1952 there were 35 patients so treated and who have now lived two years or more since the operation; the present total is in the nineties. In this whole series there has been no instance of recurrent ulceration. My unmeasured impression is that in the first few days after operation in a small proportion, perhaps 1 in 5 or 10, the stomach remnant is slower to start the onward movement of fluid so that aspiration is required for longer than usual, perhaps for three to four days. After this period progress is straightforward. There has been no sign of gastric stasis with belching and discomfort in the weeks after operation as has been noted following vagotomy alone. There have been no instances of diarrhoea attributable in any way to vagotomy, the bowels behaving in the whole series like any usual series of partial gastrectomy. The general convalescence is similar to the usual two-thirds Billroth I operation. In the first few months after operation, rather surprisingly, these patients do not seem to manage a meal bigger than the usual Billroth I subject, but I have a strong conviction that after six months many more patients than with the higher Billroth I operation are managing to eat a full-sized main meal without discomfort. Perhaps it needs a little time for the stomach to recover from the surgical trauma. There have been no "dumpers" and no bile-vomiters in this group. Patients have put on flesh after the operation and weights have been well maintained.

The series could not promise better, but a certain answer will need 10 years—or less. In the meantime, like Professor Wells and Mr. MacPhee, I am hoping it will prove the "Aristotelian mean."—I am, etc.,

Oxford. G. E. MOLONEY.

REFERENCE

[1] *Lancet*, 1953, **1**, 253.

SIR,—I read with great interest Professor Charles Wells's and Mr. Ian W. MacPhee's article on the late follow-up of partial gastrectomy (*Journal*, November 13, p. 1128). When an authority of Professor Wells's standing, who has made such a detailed study of complications of gastrectomy and treatment, advocates a combined operation his conclusion deserves great respect.

Several years ago, when vagotomy as a single procedure was rightly being abandoned, I made a plea that a combined operation should be continued.[1] It seemed to me that causation of duodenal ulceration was closely related to overstimulation of the vagus, but unfortunately division of those nerves led to atonia of the stomach with all its subsequent unpleasant side-effects. It did, however, permanently abolish the unbuffered psychic flow of acid. It seemed, therefore, that the problem remaining was to deal with the atonia of the stomach.

When gastro-enterostomy was performed as a single procedure for the treatment of duodenal ulceration it was designed mainly to short-circuit the duodenum. The increased tone of the stomach which is so common with duodenal ulceration still persisted. A small stoma gastro-enterostomy was therefore adequate in these cases, although the long-term results may not have been satisfactory. To drain an atonic stomach the stoma must be placed at the most dependent part of the stomach and must be larger, extending to the greater curvature. Since this plan was adopted some years ago the operation of bilateral vagotomy with large stoma posterior gastro-enterostomy has now been performed over 400 times. There has been one death. This low mortality is undoubtedly due to the fact that the unhealthy tissue of the first part of the duodenum can be left untouched.

A continuing review of these cases is being carried out, and up to the present it would appear that a failure rate of 5% is to be expected. Some of these cases have been submitted to further operation, and in all but two a disappointing result has been due to dysfunction of the stoma with bile vomiting or proximal loop retention, both of which are easily corrected. In two cases recurrent ulceration has taken place—one gastric and one jejunal—both of which required a partial gastrectomy. The results in the remaining 95% have been most encouraging. They have returned to normal employment and normal pre-operative weight. Although the follow-up time of this group is short it has been noted that the complications already recorded have declared themselves in the first year.

In a small initial series of 20 cases where vagotomy was carried out alone no less than three of these developed gastric ulceration. This was considered to be due to associated gastric retention. Experimental work in America[2] has shown that persistent distension of the pyloric end of the stomach will produce a continued hormonal secretion with gastric juices. Therefore it would seem reasonable to suppose that prolonged stimulation of the pyloric end of the stomach due to gastric stasis may result in gastric ulceration. Most surgeons are agreed that Billroth I gastrectomy for gastric ulceration has given good and permanent results. If over-stimulation of the pyloric end of the stomach is indeed the cause of gastric ulceration then the removal of this portion of the stomach would be expected to give such a result, vagotomy being contraindicated, as there is no evidence in this type of ulceration that the vagus is overfunctioning. Furthermore, the Billroth I gastrectomy restores normal anatomy as far as possible, as, of course, the duodenum, although elongated, is healthy. Polya subtotal gastrectomy for duodenal ulceration, however, fails to deal with the vagal over-stimulation, and at the same time converts the stomach from a reservoir to a channel; also, the pancreatic secretion is not stimulated by the presence of acid in the duodenum. It is not surprising therefore that this gross distortion of the normal physiology of the upper intestinal tract is followed by many disappointing results.

Finally, I would like to quote Mr. N. Tunnell, a surgeon who works in Assam, where duodenal ulceration is apparently common and diet is meagre. He states that subtotal gastrectomy has been ruled out there because patients are unable to maintain themselves after this operation. He finds, however, that after vagotomy and posterior gastro-enterostomy they thrive and most do very well.—I am, etc.,

Newcastle-upon-Tyne, 2. F. DENIS HINDMARSH.

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[1] *Lancet*, 1951, **2**, 542.
[2] Dragstedt, L. R., *et al.* (1951). *Ann. Surg.*, **134**, 332.

Cattle Ringworm

SIR,—I was interested to read the article on cattle ringworm by Dr. A. J. Rook and Dr. W. Frain-Bell (*Journal*, November 20, p. 1198).

This condition is by no means uncommon, and I think it is fair to say that once you have had it you are most unlikely to contract it a second time. The more serious cases, often showing severe secondary infection, are sent to hospital and may take many weeks to clear up. It is usually quite safe to give penicillin injections, and part of the treatment should consist of hot water compresses repeated several times daily, as these do reduce the swelling and induration which is a feature of the well-established cattle ringworm infection in man. I have found the application of 1% aureomycin in an emulsion base most helpful in clearing the marked secondary infection. It is spread over the lesion after each hot water compress. Contact dermatitis from the use of Whitfield's ointment may often be avoided by adding white petroleum jelly in equal parts to the standard ointment. This preparation should be used in the circinate scaly tinea only.

Finally, may I put in a plea for the judicious and careful use of superficial *x*-ray therapy, which will often speed up recovery if given when the acute inflammation has subsided?—I am, etc.,

Newcastle-upon-Tyne, 2. R. MASON BOLAM.

Sickling and Malaria

SIR,—An experience of mine in West Africa during the war may be of interest to those who are debating in your correspondence columns whether the sickling trait gives the erythrocytes some special protection against malarial parasites.

I had been asked to do a splenectomy on a Gambian soldier for sickle-cell anaemia which had not responded to medical measures. About a fortnight after leaving hospital he walked in again complaining of fever and headache. A blood-film showed that nearly 100% of his erythrocytes were parasitized. The picture, Major Winston Evans told me, was similar to the one found in cases of "cerebral" malaria. A few injections of quinine effected a rapid cure, and the patient soon returned to his unit. From time to time he reappeared for further injections, always with his erythrocytes heavily parasitized, but with comparatively little in the way of symptoms apart from a high temperature. Eventually we lost sight of him and I was told he had died of chicken-pox.—I am, etc.,

Southwold, Suffolk. J. C. LEEDHAM-GREEN.

Still Going Strong

SIR,—To-day a young Pakistani medical graduate called upon me with a letter of introduction from his grandfather, Dr. Abdul Karim, an old friend of mine. On my asking after Dr. Abdul Karim's health, the young man assured me that his grandfather was still, at the age of 98, engaged in the active practice of our profession at Malihabad in the Lucknow district.

Surely this must be near, if not quite, the record. Apparently Dr. Karim's only complaint is that he cannot hear stethoscopic sounds so clearly as he used to.—I am, etc.,

Lewes. CUTHBERT SPRAWSON.

Florence Nightingale Bibliography

SIR,—I have been entrusted by the Florence Nightingale International Foundation with the compilation of a bibliography of the published writings of Florence Nightingale, together with a calendar of all her extant manuscripts and letters. I should be grateful if owners or custodians of any manuscripts or letters of Miss Nightingale would communicate with me with a view to the inclusion of their material in the forthcoming book. If it is possible to send the actual documents, these will be examined and returned without delay. In view of the large number of letters to be dealt with it is not proposed to copy them, but to compile a location list with a brief indication of the subject of each letter.—I am, etc.,

The Wellcome Historical Medical Library, 183, Euston Road, London, N.W.1. W. J. BISHOP.

B.M.A. Library

SIR,—I heartily endorse the appreciative remarks on the services given by the B.M.A. Library as appeared in the letter of an "Appreciative Member of the B.M.A." (*Journal*, November 20, p. 1232). I would like to couple the library of the Royal Society of Medicine with the same appreciation. I have always found both librarians very helpful and courteous. I am especially interested in the applications of electronics in medicine. I have written on numerous occasions to these librarians for books on electronics which would not normally be found in medical libraries. They have spared no pains to get them from other sources. They have acted the part of guide, philosopher, and friend. My grateful thanks to both and also their very efficient staffs.—I am, etc.,

Swansea. G. E. DONOVAN.

Obituary

E. I. LLOYD, M.B., F.R.C.S.

Mr. E. I. Lloyd, senior surgeon to the Hospital for Sick Children, Great Ormond Street, died suddenly on November 26 at his home at Harpenden, aged 62, the day after he had decided to retire owing to failing health.

Eric Ivan Lloyd was born in Birmingham on July 2, 1892, and was educated at Leighton Park School and Trinity College, Cambridge, where he gained a half-Blue for athletics (half-mile). He qualified from St. Bartholomew's Hospital in 1916, and served in the Friends' Ambulance Unit in France and subsequently for two and a half years as a surgeon lieutenant in the Royal Navy.

Returning to St. Bartholomew's, he was successively house-physician, house-surgeon (to the late Sir Holburt Waring), and demonstrator of anatomy, and obtained the degrees of M.A., M.B., B.Ch., Cambridge, and the Fellowship of the Royal College of Surgeons. Then came a series of appointments at the Hospital for Sick Children, including that of resident medical superintendent for two years, which culminated in his being appointed surgeon to the hospital in 1926. In the two succeeding years he was also chief assistant to the late Mr. R. C. Elmslie in the orthopaedic department of St. Bartholomew's, and for one year registrar at the Royal National Orthopaedic Hospital. In 1931 he was appointed surgeon in charge of the orthopaedic department at the Royal Northern Hospital, an appointment which he retained until 1952. He was also for a time surgeon to the Princess Louise Hospital for Children, and during the second world war rejoined his St. Bartholomew's colleagues as an E.M.S. surgeon in the orthopaedic department at Hill End Hospital. He was president of the Orthopaedics Section and secretary of the Paediatrics Section of the Royal Society of Medicine, and vice-president of the orthopaedics section at the Annual Meeting of the British Medical Association in 1934.

His work at Great Ormond Street was throughout the main interest in his life. He was appointed to succeed Sir Thomas Fairbank as surgeon in charge of the orthopaedic department there in 1928. He contributed chapters to textbooks in his specialty, and pioneered a new method of nailing for fracture of the femoral neck, but his interest was mainly in the treatment of children.

Lloyd was tall and distinguished in appearance, and inspired confidence in his patients not only by his qualities as a surgeon but because they knew he was deeply interested in their welfare. No one could have been more kind and considerate, and in his dealings with colleagues and others as well as patients he was one of the gentlest of men, and a strong influence in maintaining happy relations in a community. He was a good speaker, an accomplished and sometimes epigrammatic writer, and an entertaining conversationalist.

He came of a well-known Quaker family, one of his direct ancestors being the founder of Lloyds Bank. He married in 1926 Antoinette Marie Roux, of Pretoria, South Africa, a Dominion which he visited several times. She survives him, with one son and one daughter.

D. B. writes: The sudden and unexpected death of Eric Lloyd after 30 years of devoted service to the Hospital for Sick Children has come as a great shock and grief to his colleagues. Although they had already learnt with regret that he was retiring from active practice a few years before he had attained the official age for this, they had looked forward to being able to benefit from his great experience and balanced judgment as a consulting surgeon for many years in the future. Lloyd resembled the previous holder of the post of orthopaedic surgeon to the Hospital for Sick Children, Sir Thomas Fairbank, in that his character was an integral part of his surgical work. He had all the marks of the universally respected sect of the Christian Church to which he belonged, the Society of Friends—complete lack of self-seeking, kindliness towards everyone, refusal to quarrel on any subject, and lack of dogmatism. His work bore out his beliefs: it was eminently sound and careful, with great consideration for the feelings of both patient and parents, a complete honesty in the evaluation of results, and a refusal either to adopt or abandon methods without very good reason. It is part of the tragedy of his death that his careful observations on long series of patients over long periods of time can now not be completed by their originator.

There is a part of the work of a senior surgeon which is recently becoming of greater and greater importance, that of explanatory and organizing work in committees containing a large proportion of laymen. To Lloyd's transparent honesty and devotion to the interests of the patient there was added a most uncommon clearness both of thought and of statement: how much the Hospital for Sick Children and the profession in general owe to him as a maker of peace, an unraveller of problems, and a dissolver of suspicions only those who have worked with him know.

CHARLES WALTER GORDON BRYAN, *M.C.* F.R.C.S.

Mr. C. W. Gordon Bryan, consulting surgeon to St. Mary's and other hospitals in London, died on November 28 at the age of 70.

Charles Walter Gordon Bryan was the son of Dr. F. C. Bryan, of Littlehampton. He received his medical education at St. Mary's Hospital Medical School and qualified in 1907 with the Conjoint diploma. After filling house-appointments at St. Mary's Hospital and at the Children's Hospital, Great Ormond Street, he took the F.R.C.S. in 1910. For a time he worked in the Inoculation Department at St. Mary's and later demonstrated in bacteriology at Oxford University. This work bore fruit, for in 1911 he was awarded the Middlemore Prize of the British Medical Association for an essay on the subject of serum and vaccine therapy in connexion with diseases of the eye. During the war of 1914–18 he saw service in Belgium and France, where he acted as consulting surgeon to the Third Army. He was mentioned in dispatches and awarded the Military Cross. After the war he was appointed demonstrator of anatomy in St. Mary's Hospital Medical School and in 1920 was elected to the surgical staff of the hospital. For some years he was in charge of the orthopaedic out-patient department, but his interests were in general surgery, and he was put on the surgical staff of the King Edward Memorial Hospital, Ealing, and the Children's Hospital, Paddington Green. He also served as surgeon to the London Fever Hospital and to St. Luke's Hospital for Advanced Cases, as it was then called. For a time he also acted as surgeon to out-patients to Hampstead General Hospital.

In 1921 he was elected Hunterian Professor at the Royal College of Surgeons, taking as his subject

"Wounds of the Diaphragm," for which his experience in the first world war provided him with ample material. Gordon Bryan was a member of several medical societies, was at one time vice-president of the Harveian Society, and held a period of office as honorary treasurer and as honorary secretary of the Royal Society of Medicine. He took an interest in Freemasonry and acted as surgeon to the Royal Masonic Institution for Girls. During the war of 1939–45 Gordon Bryan was officer in charge of Surgical Division R.A.M.C., acting as consulting surgeon to the Southern Command, and in 1943 he became surgeon to in-patients at St. Mary's Hospital. At the end of the war he returned to duty at his hospitals for a time, but in 1946 he gave up his surgical work and retired to live a quiet life in the country. A few years ago he had a serious heart-attack, and since then he had seldom been seen among the places where he formerly worked.

Gordon Bryan was of robust frame, and as a student survived being run over by a bus, sustaining a broken sternum as the only serious lesion. He was a very sound surgeon, careful in diagnosis, skilful in his operative technique and general treatment, and conscientious in carrying out his duties. In some respects he was unconventional, but he always had good reason for his views. The fact that opportunity was rather late in knocking at his door may perhaps have been responsible for giving him a more critical attitude than he would otherwise have possessed. He was of a quiet disposition, was often the last to speak in committee, but his views were definite and strongly maintained. He was essentially of a kindly disposition, as could be readily judged by the way he got on with the children who were his patients.

Gordon Bryan was twice married; there were two daughters by the first marriage.

DEWAN BAHADUR P. N. LAKSHMANAN, M.B. M.R.C.P., D.P.H.

Dr. P. N. Lakshmanan died at New Delhi on April 24 at the age of 85. Born at Ponneri, near Madras, in 1869, Peter Narrainswami Lakshmanan matriculated at the age of 12 and then became a student in the Madras Christian College. He graduated B.A. in natural science from the Madras University, winning the first prize in zoology. In 1891 he entered the Madras Medical College, obtained the Lane Scholarship, and graduated M.B., C.M. in 1896 after a brilliant student career. He also won the Chipperfield Gold Medal in surgery.

Joining the Madras Medical Service in 1896, he came to London three years later for postgraduate study at King's College, taking the English Conjoint diplomas and D.P.H. in 1900. He also studied ophthalmology at Moorfields Hospital. After returning to India he accepted in 1902 the invitation of the Government of Travancore to be the senior surgeon and head of the State Hospital. In this capacity he served until his retirement in 1925, rising to be the head of the medical department and achieving eminence as a surgeon and physician in Travancore and Madras Presidency. During his tenure of office Dr. Lakshmanan introduced many medical reforms in the State. He set up a nursing school with the help of sister tutors from Europe; he introduced compulsory medical examination of students in schools and colleges; he modernized the medical and surgical practice of the hospitals in the State; and he abolished untouchability in hospital patients. In 1910 he was admitted to Membership of the Royal College of Physicians of London.

Dr. Lakshmanan was an official member of the Travancore Legislative Council and a member of the Senate of the University of Madras, service which he continued after retirement. In recognition of his medical work outside the Travancore State the then Government of India conferred on him the title of Dewan Bahadur in 1920. After his retirement from official service Dr. Lakshmanan was engaged in consulting practice in Jubbulpore, Central Provinces, and interested himself in the work of the local and provincial medical associations. A member of the B.M.A. for fifty-four years, he was president of the Jubbulpore Medical Association, and in 1939 was appointed president of the Central Province Medical Council. Thus he continued to take a very active part in the medical life of his adopted province. He was founder member and past president of the Rotary Club of Jubbulpore.

By nature quiet and reserved, he was genial, courteous, kind, and charitable to those who came in contact with him and who sought his advice and help. People in need, medical or otherwise, always found in him a real benefactor. A student to his last day, he took a keen interest in anthropology and philosophy, and was a connoisseur of Indian and Western music. He led a very rich life, with a bias for the deeper and religious aspects of human endeavour. He married in 1905 Dayabai, daughter of Anand Singh Chauhan, of Nagpur, and was deeply devoted to his family. He lost his second son in a drowning accident, and in his memory donated an out-patient hospital at Jubbulpore. Dr. Lakshmanan's death leaves a void in the medical life of India, for his many friends, patients, and admirers will miss him very much. He is survived by his widow, two sons, and a daughter.—M. S. R.

LORD COURTAULD-THOMSON

Lord Courtauld-Thomson, who died on November 1 at the King Edward VII Sanatorium, Midhurst, at the age of 89, was not only a well-known man of business but an energetic benefactor of hospitals and of the British Red Cross Society. We are indebted to Sir ARTHUR MACNALTY for the following appreciation.

Lord Courtauld-Thomson was a remarkable man. His administrative abilities would have made him an eminent statesman, his courtesy and diplomatic gifts a great ambassador. Instead he devoted these talents to business and philanthropy. In the medical profession he will best be remembered for the conspicuous services he rendered to hospital administration as chairman of University College Hospital and of King Edward VII Sanatorium, Midhurst, and to the Red Cross Society in two world wars.

He had a wide knowledge of the aims and ideals of medicine, and on many occasions paid unstinted tribute to doctors and nurses. But he never accepted medical advice blindly. At sanatorium committee meetings, when some new expenditure was proposed in connexion with a new form of treatment in tuberculosis, he inquired searchingly into its value, and his questions would have done credit to an erudite chest physician. He was zealous for the improvement of the conditions under which nurses worked. I remember a few years ago he came up to London, at some personal inconvenience, to take the chair at a lecture at the Professional Nurses and Midwives Conference, at my request. His mental and physical powers endured to an advanced age; his kindness was invariable. In his passing many will miss a friend, and the sick and suffering a benefactor.

Sir ROBERT STANTON WOODS, M.D., F.R.C.P.

A. E. N. writes: The personal side of great men is always interesting. I had the good fortune in my youth to be a clinical clerk at the "London" when Stanton Woods (whose obituary notice was published in last week's *Journal*) was house-physician to Dr. Francis Warner. He was a tremendous worker, very serious and businesslike, but always genial. I once asked him if he ever took time off. He said, "Sometimes I take a twopenny ride in the evening on the top of a bus." I well remember him at Christmas with sleeves rolled up, carving away at the turkeys sent by kind people for the patients. We then darkened the ward, Woods poured brandy over the Christmas puddings, set them alight, and danced in with tray held aloft, while I thumped out "The Campbells are Coming" on the piano. He and his brother usually went to Canterbury for the cricket week. They watched play in the daytime and fished in the evenings, living at a cottage. At his first meeting with King George V he was a little late, and explained that he had had to make arrangements for his hospital patients to be seen. The King was very pleased to hear they would be all right, and said that, when feeling low, he always reminded himself that he was not the only sick man in England. It is characteristic of the man that when we were being announced at a reunion dinner following his knighthood he gave his name briefly as just Woods, but he did not escape and was made to come in again under his full title.

Dr. ANDREW DEUCHARS, who was a senior medical resident at Stonehouse Hospital, Lanarkshire, for over four years, died suddenly on October 16 in tragic circumstances while carrying out his duties. He was 31 years of age. Andrew Deuchars was a medical student at Glasgow University, where he graduated M.B., Ch.B. in 1946. After holding an appointment as house-physician at Stobhill Hospital, he entered the R.A.M.C. in 1947 for his National Service and served in Palestine, East Africa, and Mauritius. On return to civilian life he worked for a short time at Glasgow Royal Infirmary, and then took a course in tropical medicine and hygiene at Liverpool University, where he obtained the D.T.M.&H. in 1950.

For the following appreciation we are indebted to medical colleagues of Dr. Deuchars: In the short lifetime of 31 years Dr. Andrew Deuchars achieved greatness as a gentleman, as a physician of the highest quality, and as a friend. Ever restless in his quest for perfection, he never failed to attend to any task given to him. Wherever assistance could be given, there he was to be found willing and comforting. His patients, no matter of what colour or creed, whether of high or low social standing, were his first and last consideration. To his fellow doctors he was always courteous, obliging, and kind. A fine conversationalist, Andrew Deuchars possessed a deep understanding and a ready wit, always expressed in a quiet and charming manner. His life's example provides a challenge and an inspiration to his fellow doctors to continue in the same sense of mission that he exhibited so thoroughly in his lifetime. The sympathy of his colleagues and friends is extended to his widowed mother and to his brother in their tragic bereavement.

A. S. writes: Dr. Deuchars was altogether an exceptional young man who lived a dedicated life. He was beloved by colleagues, nursing staff, and patients alike. He was never impatient and no effort was too much for him. He indeed "scorned delights and lived laborious days" in the service of others.

The colleagues and friends of Mr. H. I. REES were grieved to learn of his sudden and tragic death at Sackville, New Brunswick, Canada, on October 22, at the age of 36, just when it seemed that he had at last found a home for his young family and a field for his many talents. Haydn Ieuan Rees was born at Llanelly, South Wales, on February 18, 1918. From the beginning of his medical career he showed promise much above the average, and the standards of his early student days were maintained until his untimely death. Taking his B.Sc. at the University of Wales in 1938, he was awarded the Alfred Sheen Prize in anatomy and physiology, and the David Hepburn Medal in anatomy, histology, embryology, and anthropology. His career at the Welsh National School of Medicine was equally distinguished, and he was awarded the Dr. Howell Rees Scholarship in medicine. On obtaining the degrees of M.B., B.Ch. in 1941, passing with distinction in many subjects, the award of the Willie Seager Prize and Medal in surgery crowned his efforts. After appointments at the Cardiff Royal Infirmary and the Ronkswood Hospital, Worcester, he joined the R.A.M.C. in 1942, serving in North Africa, Italy, Greece, and Austria with field ambulances, and in British general hospitals. At the time of his demobilization early in 1947 he held a specialist appointment on the surgical staff at Tidworth Military Hospital. On return to civilian life he undertook a period of further study, first at the Royal College of Surgeons of England and later at the Postgraduate Medical School of London, obtaining the F.R.C.S. in 1949. From an appointment at Stratford-on-Avon Hospital he joined the staff of the Luton and Dunstable Hospital as first assistant to the surgical unit, and while there contributed an article on infected urachal cysts to this *Journal* in 1953. It was from this post that he left to take up his new life in Canada, a journey which ended with tragedy after he had been only 18 months at Sackville Hospital, New Brunswick. There his quiet, modest nature, coupled with his undoubted efficiency as a surgeon, had made him already well liked in his new home.

W. S. H. writes: Although the war years inevitably separated Haydn Rees from his friends, it was the same unchanged personality that emerged. Imbued with the desire to become efficient at his chosen task, he was a constant and tireless worker whose abilities were always recognized and appreciated by his patients and fellow workers alike. Success strengthened his will to do better, and tragedy, which always seemed to brush his path in life, left him more eager to help others. Complacency he never knew. His friends extend their thanks to his medical colleagues in Canada, and are deeply grateful for their generous care of his wife and young children in their grievous loss. Their help in organizing his last journey back to the Land of his Fathers, where he now rests, is also deeply appreciated. To his wife, Marion, and to his children our deepest sympathy is extended.

Dr. JOHN WILLIAM COWEN, who was in general practice in Bebington, Wirral, Cheshire, for 28 years, died on November 16 at the age of 52. After graduating M.B., Ch.B. at Liverpool University in 1924 he held resident appointments at the David Lewis Northern Hospital, Liverpool, and at the Port Sunlight Hospital. For about two years he worked as an assistant before going into practice at Bebington, where he built up a very large practice. This was not surprising, for he was exceptionally capable, and treated every patient as a person who really mattered. A founder member of the College of General Practitioners, he was also chairman of the Committee for Undergraduate Education of the Merseyside Faculty. His chief recreation was sailing, and he had won the Isle of Man race from Liverpool. Dr. Cowen never spared himself in any way, and will be sadly missed by patients and colleagues alike. To his widow, three sons, the eldest of whom is a medical student, and his daughter we extend our deepest sympathy.

The death occurred in an Edinburgh hospital on November 8 of Dr. WILLIAM J. BURNS, who was a general practitioner before specializing in diseases of the lungs. Born on May 27, 1899, the son of a schoolmaster at Dalrymple, Ayrshire, William James Burns served as a pilot in the Royal Flying Corps in the first world war, after which he returned to Edinburgh University and graduated M.B., Ch.B. in 1923. Having held house appointments at the

County Hospital and Heathfield Hospital at Ayr, he became an assistant in a general practice at Grimsby. From 1927 to 1937 he was a general practitioner at Workington, Cumberland. In 1934 he contracted tuberculosis, against which he fought very courageously for the next 20 years. During long spells in hospital he studied ornithology and medicine, and while convalescent in 1943 became a Member of the Royal College of Physicians of Edinburgh, being elected a Fellow six years later. For a short time he was assistant superintendent of Glenlomond Sanatorium, and medical superintendent of Lochmaben Sanatorium, Dumfries. He was a vice-president of the Tuberculosis Society of Scotland. Enjoying comparatively good health for the past few years, he became a consultant in lung diseases to the Ministry of Pensions, a member of a pneumoconiosis panel, and a medical referee to the Department of Health for Scotland. It was a source of great satisfaction to him that he lived to see the day when sufferers from his disability could be cured in the early stages by modern chemotherapy. He is survived by his widow and daughter.—T. S.

Dr. J. A. MADDEN, for many years a member of the Irish Hospitals Commission, and a well-known and popular Dublin doctor, died recently in Dublin. John Anthony Madden was educated at Glenamoy National School and at St. Muiredach's College, Ballina, Co. Mayo. Receiving his medical training at University College, Galway, and at University College, Dublin, he graduated M.B., B.Ch., with honours, from the National University of Ireland in 1919. He proceeded to the M.D. in 1932, and three years later obtained the degree of B.Sc. in public health and the D.P.H., both with honours. After graduation he held appointments as resident medical officer at the David Lewis Northern Hospital, Liverpool, and then, in 1921, as medical officer to the Pollastown district near his birthplace. Later he settled in practice at Westport, Co. Mayo, and became assistant surgeon to the Mayo County Infirmary. In 1933 he moved to Dublin and was appointed a member of the Hospitals Commission established under the Public Hospitals Act of that year. Some years earlier he had held the appointment of medical officer at the headquarters of the Civic Guard. By his death Ireland has lost a medical administrator of high quality and his friends and patients a cheerful and trustworthy companion and a beloved physician. He leaves a widow and a daughter.

Medical Notes in Parliament

Cancer Registration

Mr. N. N. DODDS (Dartford, Lab.) asked the Minister of Health for a statement giving the results of his circular requesting hospitals to do everything possible to achieve the registration of all cases of cancer. Mr. IAIN MACLEOD said he had nothing to add to the answer he gave to him on October 19 (*Journal*, October 30, p. 1054). Mr. DODDS recalled that in March the Minister had said he expected a registration of 58,000 for 1953, and added, "I am asking for results." Mr. MACLEOD said he could not ask hospital authorities for a report every week or two. He was certain they were carrying out the instructions, and when he had any further information of value he would give it to the House. Mr. H. R. GOWER (Barry, Con.) asked the Minister to consider the possibility—when relatives did not object—of hospitals obtaining details of case history and dietary habits of persons who died from cancer. Two relatives of his had died of it in the past few years, he said, and so far as he knew no questions were asked of him or his relations about the history of those who had died—how they lived, what habits they had, what they ate. He thought it would have been helpful. Mr. MACLEOD said that it might be helpful, but it was a different question from the one he was answering.

Health Service Administration

The MINISTER OF HEALTH stated on November 22 in answer to Mr. R. FORT (Clitheroe, Con.) that, of the total expenditure on the Health Service (other than expenditure incurred by local health authorities) in 1952–3, administration costs of the Ministry of Health and services rendered by other departments represented about ½%, and those of executive councils and certain other statutory bodies and of hospital authorities at central offices about 2½%. It was estimated that the addition of administration costs incurred by hospital authorities inside the hospitals (for which separate details were not available) might bring the total figure for administration costs to a little over 4%.

Blood Transfusion Equipment

Dr. BARNET STROSS (Stoke-on-Trent, Central, Lab.) asked the Minister of Health on November 22 how many regional blood transfusion centres had installed the new equipment for blood transfusion; and how many complaints had been received, in addition to the complaint from Stoke-on-Trent, that the design of the new apparatus did not take into account the possibility of the blood having a considerable amount of gel in it. Mr. IAIN MACLEOD told him that four centres covering five regional hospital board areas had installed the equipment. Two other complaints had been received, but neither mentioned this particular criticism which the new set was designed to meet. Dr. STROSS asked if the answer meant that the Minister was satisfied that the new sets were working well, and that they might be left as they were without any further improvement. Mr. MACLEOD replied, "No." They did not seem to have been wholly satisfactory under pressure. Modifications were being carried out, and when new sets were issued they would be tested in as much detail as possible, which he thought should cover the point.

Dental Service

Arising out of questions on November 22 about a Birmingham child suffering from toothache who over a period of six days was taken to eight dentists and a dental hospital, all of whom refused to extract the tooth, Mr. IAIN MACLEOD said he was looking into the case. It was not regarded by the hospital as a true emergency. The difficulty was that, whereas doctors had lists, and there was the tradition of the family doctor, dentists did not have people on their lists, and there was not the same link with the patients that he would like to see. He would like to see rotas of dentists for emergency cases. He had suggested that in all areas. The Birmingham dentists had refused to undertake it. He could not go further at the moment.

Mr. FORT (Clitheroe, Con.) was informed by the Parliamentary Secretary that the intake of dental students in the academic year 1953–4 was of the order of 400. These were substantially fewer than the number the Teviot Committee hoped would be forthcoming annually to secure a proper dental service, and the Minister had the matter under close consideration.

Chiropody Treatment

Dr. BARNET STROSS (Stoke-on-Trent, Central, Lab.) asked how many local health authorities had made representations with a view to the provision of chiropody services, particularly for old people; and for an estimate of the cost of such provision to the whole country. Miss PAT HORNSBY-SMITH, Parliamentary Secretary, said on November 22 that 16 authorities had approached the Minister. The national cost would be about £1m. annually. Dr. STROSS suggested that much more than £1m. might be saved if, as a result of the service, people who could not get about and had to make long use of hospital beds were relieved, and that the matter should be given immediate consideration. Miss HORNSBY-SMITH said they realized the value of this service, but felt that there were higher and more urgent priorities.

Mass Radiography

Mr. J. K. VAUGHAN-MORGAN (Reigate, Con.) asked the Minister of Health how many persons were examined under

mass radiography schemes in England and Wales during the years 1951, 1953, and the first nine months of 1954.

Mr. IAIN MACLEOD stated on November 22 that about 2¼ million and 2¾ million persons were examined in 1951 and 1953 respectively. Figures for the third quarter of 1954 were not yet available, but the estimated number of persons examined in the first six months of the year was 1,768,000. Mr. VAUGHAN-MORGAN asked for an assurance that there was no shortage of equipment and that reasonable progress was being made. Mr. MACLEOD pointed out that the figures indicated a steady climb, and this year looked very good indeed. He would not like to say that they could not use more equipment; they could always do that.

Mental Hospitals—Accommodation of Patients

Mr. D. W. WADE (Huddersfield, West, Lib.) asked the Minister of Health what progress he had to report on the provision of adequate accommodation for patients in mental hospitals, and was told by Mr. MACLEOD on November 22 that about 5,000 additional beds in mental and mental deficiency hospitals had been provided since 1948. Capital works authorized but not yet completed would provide another 7,000. Mr. K. ROBINSON (St. Pancras, North, Lab.) said that in many hospitals overcrowding had occasioned a waiting-list for voluntary patients. Was it not unfortunate that since the public had been persuaded to accept the principle of voluntary admission they now had to ask patients to wait to be admitted? Mr. MACLEOD said he entirely agreed. That was by far the most distressing part of overcrowding in mental hospitals.

Food Poisoning

Mr. N. N. DODDS (Dartford, Lab.) asked the Minister of Health if he was aware of the concern at the increase of food-poisoning cases, from 3,519 in 1952 to 5,277 in 1953; and what action he proposed to deal with the matter. Mr. IAIN MACLEOD, replying on November 22, said "Yes." Where these incidents occurred they usually indicated poor food hygiene or faulty practice in food factories and kitchens. The Minister of Food and he would continue to encourage local authorities in their efforts to ensure by publicity and education that high standards of food hygiene were practised by the food industry, the catering industry, and food handlers generally, and as soon as the Food and Drugs Amendment Bill came into operation they would jointly make food hygiene regulations to strengthen the hands of the local authorities in this matter.

Antibiotic Drugs as Preservatives

Dr. BARNET STROSS asked the Minister of Food on November 22 which of the antibiotic drugs were being used as preservatives in the food industry; and whether he would prohibit this practice. Mr. HEATHCOAT AMORY (Parliamentary Secretary) said he was not aware that any antibiotic drugs were being so used; but if Dr. Stross had any information and would send it to him he would inquire further. Dr. STROSS said there had been reports of such use to reduce heat sterilization time and temperature, and asked the Minister to state resolutely that they should not be so used in food because it would be against the best interests of public health. Mr. AMORY answered that their use would be against the law.

University Salaries

The increases in academic salaries occasioned further comment on November 23, when the CHANCELLOR OF THE EXCHEQUER told Mr. KENNETH ROBINSON (St. Pancras North, Lab.) that the additional funds he would ask Parliament to vote would provide for increases in basic salaries but not for any changes in the rate of annual increments received by assistant lecturers and lecturers. Mr. ROBINSON said that the main disappointment with the new scales lay in the continued differentiation between preclinical and non-medical staff, not only in the increments but also in the basic salaries. Some preclinical professors had refused to accept the additional amount to which they were entitled because they believed this differentiation to be unfair. In these circumstances, did the Chancellor think the differentiation could still be justified? Mr. BUTLER said that he was aware of the anxieties, just as he was before the scales were brought out. In the circumstances he thought the scales were about as fair as they could get.

Cadmium Poisoning.—The Parliamentary Secretary to the Ministry of Works said on November 23 that the report of the Medical Research Council on the incidence of chronic cadmium poisoning had just been completed and would be made available to the Minister of Pensions and National Insurance within the next week or so. It would be published as soon as possible in the medical press.

G.P. Hospital Beds.—The numbers of staffed beds allocated to G.P. maternity and medical units were respectively 2,036 and 6,524 at the end of 1953, according to a reply given by the Minister of Health on November 22.

Blind Babies.—Figures supplied by the Parliamentary Secretary, Ministry of Health, on November 22 showed that the number of newly registered blind babies under the age of 1 year since 1944–5 had been: 12, 18, 17, 23, 21, 34, 44, and 74. All these figures were for the twelve months ending March 31 in each year. In 1952, when the basis was changed to the calendar year, there were 42 registrations for the nine months April–December, and in the year 1953 there were 55.

Medico-Legal

INCAPACITY TO CONSUMMATE MARRIAGE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In January, 1949, Mr. and Mrs. S. were married. They lived together until September, 1952, but the marriage was never consummated. In September, 1952, Mr. S. left his wife, and during that autumn began an improper association with another woman.

The first shot in the consequent legal battle was fired by Mrs. S., who in November, 1952, obtained an order for maintenance against her husband in the magistrates' court on the ground of desertion. In April, 1953, the husband countered with a petition that the marriage be annulled on the ground either of Mrs. S.'s incapacity or of her wilful refusal to consummate it. Mrs. S. in her answer asked for dissolution of the marriage on the ground of Mr. S.'s adultery, which was not disputed.

The suit first came on for hearing before Mr. Justice Karminski in July, 1954. It was then proved that the wife was a virgin by reason of a "structural defect," but that her condition was simply remediable by operation. Mr. S. had suggested that she should see a doctor but had not pressed things as far as taking her to see one, and she had not in fact done so till after the petition had been filed. Mr. S. did not dispute that he had committed adultery. Mrs. S. said she was quite willing to have the operation, and the judge adjourned the hearing for further argument and the assistance of the Queen's Proctor.

By the time of the resumed hearing[1] Mrs. S. had had her operation, and no structural impediment to the consummation of the marriage any longer existed. Mr. Justice Karminski held that where the impediment to consummation did not amount to practical impossibility because it was remediable, and had in fact during the adjournment been remedied, it did not fulfil the requirements for legal incapacity. The true question was this: Was consummation practically impossible at the date of the hearing in July? The answer must be No. He also held that there had been no conscious act of volition by Mrs. S. amounting to wilful refusal to consummate the marriage. Her failure to see a doctor might in certain circumstances have amounted to such a refusal, but did not on the facts of the case do so.

Mr. S.'s petition for nullity was accordingly dismissed, and Mrs. S. was granted a decree of divorce on the ground of adultery.

[1] *The Times*, November 27, 1954.

Universities and Colleges

UNIVERSITY OF OXFORD

Professor P. R. Allison, Nuffield Professor of Surgery, has been elected to a Professorial Fellowship at Balliol College.

In Congregation on October 14 the following degrees were conferred:

D.M.—R. M. Acheson.
B.M.—S. E. Smith, J. A. Benbow, I. Gregg.

UNIVERSITY OF CAMBRIDGE

In Congregation on October 16 the following degrees were conferred:

M.B., B.CHIR.—*J. Anderson, *F. R. Spink, *G. L. Bunton, J. R. McNeill.
M.B.—*R. A. Carter, *J. B. Royston, *J. A. D. Briggs, *R. B. Jenkins, *Lorna M. Stauffer, J. F. Bennett, Jill M. Evans.
*By proxy.

UNIVERSITY OF DURHAM

In Congregation on September 25 the Diploma in Psychological Medicine was awarded to C. F. Lascelles.

UNIVERSITY OF LONDON

The following candidates at the London School of Hygiene and Tropical Medicine have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN PUBLIC HEALTH.—N. J. Al-Chokhachi, G. H. K. Niazi.

The degree of M.S. was awarded to A. G. Riddell on September 20.

The following candidates have been approved at the examinations indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN CLINICAL PATHOLOGY.—Barbara J. Arnold, A. H. Chaudhri, G. I. Frank, Edith E. French, F. Gabl, Lena J. Gajjar, F. C. Harris, M. J. Karnovsky, Priscilla S. Kincaid-Smith, S. M. Lewis, J. H. Little, L. Manoim, M. Navaratnam, M. Roy, J. B. Selkon, B. Singh.

EXTERNAL DIPLOMA IN CLINICAL PATHOLOGY.—J. T. Hughes, J. W. Nicholas, E. E. Vella.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on October 14, with Sir Harry Platt, President, in the chair, a resolution of condolence was passed on the death of Professor F. Wood Jones, formerly Sir William Collins Professor of Human and Comparative Anatomy in the College. It was announced that Sir Gordon Gordon-Taylor would deliver the next Thomas Vicary Lecture in place of the late Professor Wood Jones.

A diploma of Fellowship was granted to J. R. Wadsworth (Sydney).

Diplomas of Membership were granted to P. R. L. Lam-Po-Tang (Manchester) and B. H. Strangways-Dixon (Oxford).

Diplomas were granted, jointly with the Royal College of Physicians of London, as follows:

DIPLOMA IN CHILD HEALTH.—H. C. Anderson, L. G. Andrews, June Barclay, R. P. Benson, Olivia B. Z. Bikitsha, Mehroo M. Billimoria, W. F. Bindon, Emma L. Birse, Gillian M. Bryant, A. S. Bull, Winifred Burgess, A. M. Burnford, C. Burns, Margaret E. Burns, J. F. Cleobury, Mary C. Coghlan, D. T. Crichton, L. R. Dennis, Adriana E. du Toit, Cathleen M. Elliott, Isabella C. Ferguson, G. H. Fish, Freda Fleischer, Stephanie K. Fleming, Mary L. Fraser, Una de H. Freeston, Eva A. Frommer, W. W. Ghali, B. L. Goldschmidt, Katherine A. Grice, Vimla V. Gujral, E. P. Hamblett, W. Hamilton, I.-Ud-Din Hasan, D. N. Hawkins, W. Hawkins, Judith A. R. Hay, V. B. Henry, G. W. Hickish, Margaret Hunter, H. L. Isserow, M. L. Jones, W. T. Jones, E. E. F. Keal, B. S. Laing, Seeta Lall, F. Lees, Hyacinth I. Lightbourne, Norma A. Lloyd, Mary Lloyd-Evans, J. S. H. Lodge, W. H. McBay, K. G. P. Mackenzie, A. Majaj, Dorothy J. Marsden, A. B. Murray, Sumedha N. Pathak, H. B. Perera, Anne T. A. Phillips, Estella G. Pollock, Moira K. M. Pratt, G. D. Rees, Shelagh M. Richards, Margaret E. Robson, N. J. W. Royston, Patricia M. Russell, G. Rutledge, J. K. Saksena, Zakia S. Seif, M. H. Shnier, S. Spiro, J. Teeger, A. L. Thom, Sheila Thompson, A. W. Tranter, A. C. Trevan, A. G. Wallace, Patricia M. Woolf, Joan P. Wright, Yvonne Yoffe.
DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—J. R. Wadsworth.
DIPLOMA IN OPHTHALMOLOGY.—M. P. N. Pande.
DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—P. L. Kapur.

ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS

The following, having satisfied the Board of Censors in Australia, were admitted to Membership of the College in October: B. S. Hartnett, A. P. Millar, and J. D. Murphy, of New South Wales; I. H. W. Anderson, J. R. E. Fraser, G. J. Groves, W. H. Kitchen, Graeme Larkins, D. H. Meyers, and M. G. Whiteside, of Victoria; C. H. Campbell, of Queensland; and T. S. Kirkland, of Tasmania.

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **November 13** (No. 45) and corresponding week 1953.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1954					1953				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	17	2	2	0	4	29	4	1	1	0
Dysentery	575	52	184	3	2	310	66	176	2	1
Encephalitis, acute	3	0		0		10	0	0	0	
Enteric fever:										
Typhoid	2	0	0	0	1	3	2	2	0	1
Paratyphoid	11	1	1(B)	0	0	17	0	1	0	1
Food-poisoning	190	21		0		199	27		2	
Infective enteritis or diarrhoea under 2 years				16	12				25	32
Measles*	4,223	209	672	108	74	861	19	37	19	43
Meningococcal infection	26	2	16	2	1	34	1	14	0	2
Ophthalmia neonatorum	27	0	10	0		32	6	6	0	1
Pneumonia†	432	30	141	5	3	475	31	146	9	
Poliomyelitis, acute:										
Paralytic	43	4	} 18	0	1	{ 89	6	} 25	12	5
Non-paralytic	24	3				46	3			
Puerperal fever§	214	37	9	1		236	37	12	3	1
Scarlet fever	725	39	146	36	31	1,269	81	237	30	69
Tuberculosis:										
Respiratory	797	99	131	34				157	30	
Non-respiratory	134	9	20	10				27	3	
Whooping-cough	1,939	103	152	22	41	2,190	130	251	43	34

DEATHS in Great Towns	1954					1953				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	0	0	0	0	0	1	0	0	0	0
Dysentery	0	0		0		0	0		0	
Encephalitis, acute		0			0		0			0
Enteric fever	0	0	0	0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	6	1	3	0	1	7	1	0	1	1
Influenza	15	2	1	0	0	11	0	2	0	0
Measles		0	0	0	0		0	0	0	0
Meningococcal infection		0	1				1	2		
Pneumonia	158	14	22	4	2	180	32	28	8	6
Poliomyelitis, acute	3	1			0	4	0			0
Scarlet fever		0	0	0	0		0	0	0	0
Tuberculosis:										
Respiratory	} 98	{ 14	10	1	4	} 117	{ 13	11	2	11
Non-respiratory		1	12	1	0		0	2	0	2
Whooping-cough	0	0	0	0	0	1	1	2	0	0
Deaths 0–1 year	192	21	24	5	5	204	23	36	9	7
Deaths (excluding stillbirths)	5,023	731	570	106	162	5,000	745	555	86	154
LIVE BIRTHS	6,483	967	799	167	328	7,157	1047	857	205	382
STILLBIRTHS	180	20	29			175	22	24		

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

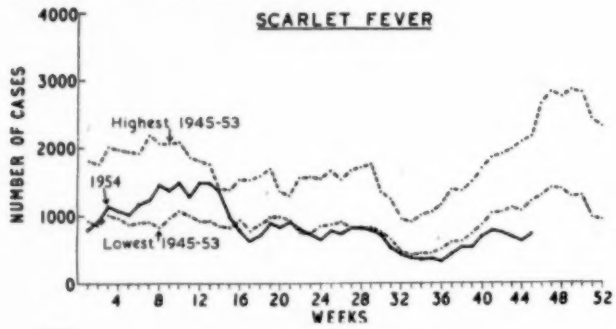
Industrial Accidents and Diseases

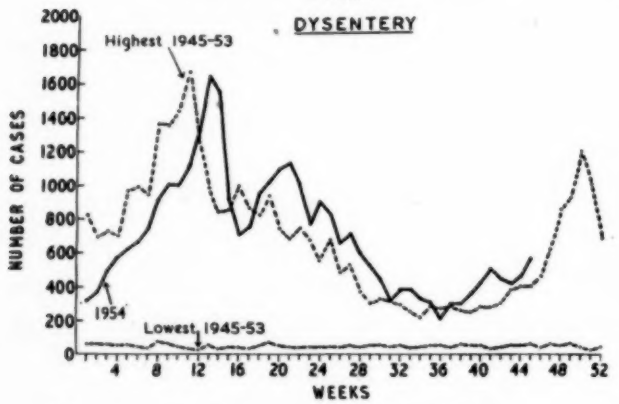
The number of workpeople (other than seamen) in the United Kingdom whose deaths from accidents in the course of their employment was reported in October, 1954, was 111, compared with 145 (revised figure) in September and 124 in October, 1953.

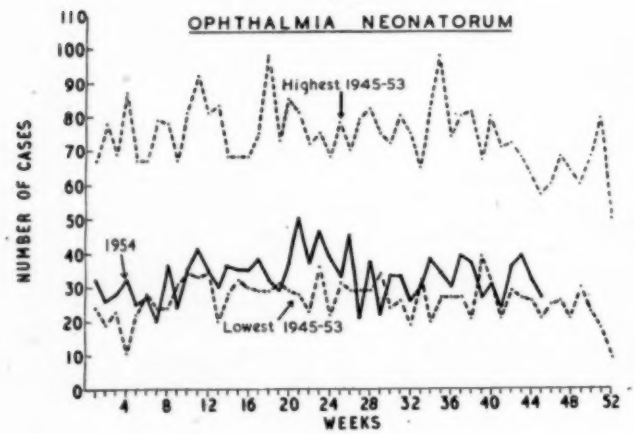
The number of cases of industrial diseases in the United Kingdom reported during October was as follows: lead-poisoning 1, other poisoning 5, anthrax 1, epitheliomatous ulceration 10, and chrome ulceration 26; total 43. There was one death (from compressed-air illness).—*Ministry of Labour Gazette*, November, 1954.

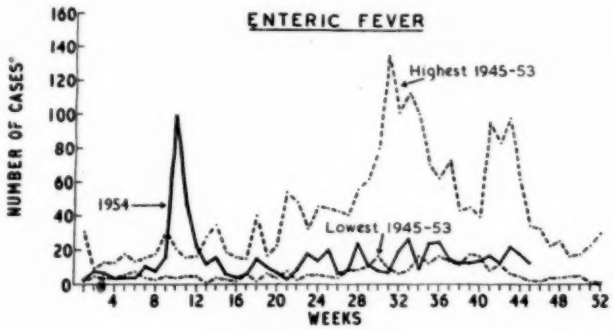
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported in each week during the nine years 1945–53 are shown thus - - - - - - -, the figures for 1954 thus ———. Except for the curves showing notifications in 1954, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Infectious Diseases

The chief variations in the notifications of infectious diseases in England and Wales during the week ending November 13 were a decrease of 412 for measles, from 4,635 to 4,223, and increases of 107 for dysentery, from 468 to 575, 89 for scarlet fever, from 636 to 725, and 81 for acute pneumonia, from 351 to 432.

The fall in the incidence of measles follows a continuous rise in the preceding eight weeks. The largest declines during the week were 79 in Lancashire, from 1,749 to 1,670, and 76 in London, from 285 to 209; the only large exception to the general decline in incidence was a rise of 69 in Yorkshire West Riding, from 332 to 401. Only small variations were reported in the trends of scarlet fever; the largest was an increase of 29 in Yorkshire West Riding, from 46 to 75. The largest fall in the incidence of whooping-cough was 35 in Derbyshire, from 67 to 32. Seventeen cases of diphtheria were notified, being 3 more than in the preceding week. The areas with multiple cases of diphtheria were Durham, Easington R.D. 3, Oxford, Henley R.D. 2, and Lancashire, Liverpool C.B. 2.

An outbreak of paratyphoid fever in Berkshire, New Windsor M.B., accounted for 5 of the 11 notifications.

Sixty-seven cases of acute poliomyelitis were notified during the week, and these were 7 more for paralytic and 1 more for non-paralytic cases than in the preceding week. The largest returns were London 7, Durham 6 (Gateshead C.B. 4), Norfolk 5 (Norwich C.B. 2), Gloucestershire 5 (Cheltenham M.B. 2), Middlesex 4 (Potters Bar U.D. 2), Derbyshire 4, Lancashire 4 (Liverpool C.B. 2).

The largest centres of dysentery were Lancashire 188 (Oldham C.B. 37, Manchester C.B. 32, Liverpool C.B. 28, Blackpool C.B. 23, Morecambe and Heysham M.B. 18, Darwen M.B. 14), Yorkshire West Riding 126 (Leeds C.B. 42, Wetherby R.D. 20, Huddersfield C.B. 19, Sheffield C.B. 16), London 52 (scattered through 16 boroughs), Sussex 25 (Brighton C.B. 24), Lincolnshire 24 (Scunthorpe M.B. 19), Warwickshire 21 (Birmingham C.B. 15), Middlesex 17, and Durham 16. In Scotland the number of notifications of dysentery declined from 210 to 184. The largest returns were Glasgow 91, Dundee 42, and Edinburgh 25.

Week Ending November 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 835, whooping-cough 2,195, diphtheria 17, measles 4,737, acute pneumonia 451, acute poliomyelitis 57, dysentery 413, paratyphoid fever 13, and typhoid fever 4.

The Services

The *London Gazette* has announced the following appointments and mentions in dispatches in recognition of distinguished services in Malaya during the period January 1 to June 30, 1954:

M.B.E. (Military Division).—Major R. M. Johnstone, M.C., and Major (Temporary) B. G. Duggan, R.A.M.C.

Mentioned in Dispatches.—Major (Temporary) H. A. Wood, M.B.E., and Captains A. Litton, D. C. Provan, G. J. Renwick, and I. B. Tait, R.A.M.C.

Medical News

The Queen at the London Hospital.—On November 25 the QUEEN visited the out-patient department and wards of the London Hospital. She was received by Sir JOHN MANN, chairman of the hospital, Mr. IAIN MACLEOD, Minister of Health, and the MAYOR OF STEPNEY. It was the Queen's first visit to the hospital since she became Patron.

Royal Society Medallists.—At the anniversary meeting on November 30 the President of the Royal Society, Dr. E. D. Adrian, O.M., presented the medals for 1954. The Royal B Medal was awarded to Professor H. A. KREBS, F.R.S., Whitley Professor of Biochemistry at Oxford, for his "unique contributions to our understanding of the intermediary metabolism of nitrogenous substances and of carbohydrates in living cells." In the course of these researches Professor Krebs has devised many valuable new methods for the study of cell metabolism. The Davy Medal was awarded to Dr. J. W. COOK, F.R.S., formerly regius professor of chemistry at Glasgow, "for his work on the polycyclic aromatic hydrocarbons, the carcinogenic hydrocarbons, and the tropolones, including the alkaloid colchicine." Dr. Cook succeeded in isolating 3:4-benzpyrene from two tons of coal-tar pitch and demonstrated for the first time the nature of tar and certain mineral oil carcinogens. Dr. E. B. FORD, F.R.S., reader in genetics at Oxford, received the Darwin Medal for his "important contributions to all departments of genetics." Most of his work has been done on moths. It has enabled him to reformulate Darwinism in terms of the Mendelian theory of inheritance and to extend Darwinian theory to natural populations. Other medallists were: Sir EDMUND WHITTAKER, F.R.S. (mathematician), the Copley Medal; Dr. C. R. BURCH, F.R.S. (inventor of the reflecting microscope), the Rumford Medal; Sir JOHN COCKCROFT, F.R.S. (atomic physicist), the Royal A Medal; and Mr. M. RYLE, F.R.S. (radio-astronomist), the Hughes Medal.

Health Dangers in the Atomic Age.—In an address at the opening of the congress of the British Institute of Radiology at the Horticultural Hall, Westminster, on November 24, Sir ERNEST ROCK CARLING discussed the dangers, present and prospective, in the production and use of nuclear energy. There would be, within a generation or so, he said, many powerful installations, all of them producing enormous quantities of fission products. Whatever the standard enjoined on all producers, users, and transporters, new health problems of a special kind would arise, and it was of great importance that members of the medical profession and in some degree others, such as chemical engineers, should be grounded in the fundamentals of nuclear science and its biological implications, including its implications for genetics. Perhaps the medical profession ought now to be devoting more attention to the physiological and pathological implications of these new forces. This was not entirely easy, for information in this new field proceeded at such a pace that the mere bulk of the papers was too great for one man to read before what was published was out of date. It was a task for groups, which, he regretted to say, meant committees. Geneticists anticipated from the release of these new energies a possible impoverishment of human stock. There were two ways of looking at that. If it were a question only of diminishing fertility it might be an advantage in a world rapidly becoming too populous for its food supply, but if it was a question of flooding the world with mental and physical defectives it would call for drastic measures, which fortunately they had not got to face to-day. Every effort should therefore be directed to obtaining the fullest possible knowledge of the biological action of radioactive sources, and so obviate the necessity for wide general restrictions.

London University.—Mr. JAMES WALKER, senior lecturer in midwifery and gynaecology at Aberdeen, has been appointed to the University readership in the same subjects at the Institute of Obstetrics and Gynaecology. The title of Professor of Biochemistry has been conferred on Dr. H. MCILWAIN, D.Sc., in respect of his post at the Institute of Psychiatry. The title of reader in physiology has been conferred on Dr. GRACE EGGLETON in respect of her appointment at University College.

Queen's University, Belfast.—Mr. G. H. BANCROFT-LIVINGSTON, formerly a research assistant at the Middlesex Hospital, London, has been appointed to a lectureship in midwifery and gynaecology.

Design of Animal Houses.—This year's collected papers of the Laboratory Animals Bureau take the form of a symposium on the design of animal houses. All the papers except one were read at a meeting at the Royal Society of Medicine last May. The book (75 pp.) may be obtained from the Bureau, M.R.C. Laboratories, Holly Hill, Hampstead, London, N.W.3. It costs 7s. 6d.

"Family Doctor."—The December issue contains topical notes on winter coughs and colds, a psychiatrist's views on dreams and nightmares, and advice on the care of a child's skin. For the housewife there are three pages of Christmas recipes. Copies are now available at 1s. 6d.

Dr. R. A. Roberts has been nominated as a sheriff of Caernarvonshire.

COMING EVENTS

British Association of Urological Surgeons.—Annual meeting in London, June 30, July 1 and 2, 1955. Members and associates wishing to read short papers should inform the hon. secretary, 45 Lincoln's Inn Fields, London, W.C.2, before January 26.

Broadcasting.—Dr. T. F. FOX, editor of the *Lancet*, will speak on "Medicine in the Soviet Union" in the Third Programme on Tuesday, December 7, at 7.5 p.m. The talk will be repeated at 10.40 p.m. the next day.

Israel Medical Association.—Third world assembly in Israel, August, 1955. The main theme will be "Modern Therapy."

NEW ISSUES

Journal of Clinical Pathology.—The new issue (Vol. 7, No. 4) is now available. The contents include:

RISKS FROM CHRONIC IRRADIATION AND THEIR HAEMATOLOGICAL CONTROL. R. H. Mole.
THE APPEARANCE AND SIGNIFICANCE OF TISSUE MAST CELLS IN HUMAN BONE MARROW. J. M. Johnstone.
ON THE APPEARANCE IN THE MARROW OF IRON ADMINISTERED INTRAVENOUSLY. H. E. Hutchison, C. P. Lowther, and W. D. Alexander.
THE EFFECT OF THERAPEUTIC RADIO-PHOSPHORUS ON THE AFFINITY OF HAEMOGLOBIN FOR OXYGEN IN PATIENTS WITH POLYCYTHAEMIA VERA. D. J. Valtis and A. C. Kennedy.
THE THROMBOPLASTIC ACTIVITY OF RUSSELL'S VIPER VENOM AND ITS RELATIONSHIP TO FACTOR VII. J. S. Jenkins.
TEMPERATURE LEVELS IN HOT-AIR OVENS. E. M. Darmady and R. Barrington Brock.
THE CLASSIFICATION OF ANAEROBIC COCCI AND THEIR ISOLATION IN NORMAL HUMAN BEINGS AND PATHOLOGICAL PROCESSES. C. G. A. Thomas and R. Hare.
CLOT CULTURE IN TYPHOID FEVER. Kenneth C. Watson.
A ROUTINE METHOD FOR TESTING THE SULPHONAMIDE SENSITIVITY OF ORGANISMS CAUSING URINARY INFECTIONS. Pamela Jewell and G. E. G. Pearmain.
ANTIBIOTIC SENSITIVITY OF THE GENUS PROTEUS. J. C. F. Poole.
THREE CASES ILLUSTRATING THE PRESENCE OF ARGENTAFFIN (KULTSCHITZKY) CELLS IN THE HUMAN GALL-BLADDER. A. C. Christie.
ESTIMATION OF PLASMA PHOSPHATASE BY DETERMINATION OF HYDROLYSED PHENOL WITH AMINO-ANTIPYRINE. P. R. N. Kind and E. J. King.
THE ENDOGENOUS CREATININE CLEARANCE IN NORMAL SUBJECTS. M. H. Roscoe.
THE ESTIMATION OF HEPARIN AND SIMILAR SUBSTANCES IN HUMAN BLOOD AND TISSUES USING A COMBINED BIOLOGICAL AND COLORIMETRIC METHOD WITH PAPER ELECTROPHORETIC STUDIES. M. Bassiouni.
THE DYE-BINDING CAPACITY OF HUMAN PLASMA DETERMINED FLUORIMETRICALLY AND ITS RELATION TO THE DETERMINATION OF PLASMA ALBUMIN. V. H. Rees, J. E. Fildes, and D. J. R. Laurence.
SERUM 5-NUCLEOTIDASE. Theodore F. Dixon and Mary Purdom.
THE ESTIMATION OF BUTAZOLIDIN IN BLOOD. D. G. Moss.
AN INTERCHANGEABLE THROTTLING DEVICE FOR PIPETTES. J. F. Ackroyd.
ANTIBIOTIC SENSITIVITY TESTS: A RAPID METHOD SUITABLE FOR MULTIPLE CULTURES. J. G. P. Hutchison.
ASSOCIATION OF CLINICAL PATHOLOGISTS: 53RD GENERAL MEETING.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

British Journal of Preventive and Social Medicine.—The new issue (Vol. 8, No. 4) is now available. The contents include:

OLD PEOPLE LIVING IN DORSET: A SOCIO-MEDICAL SURVEY OF PRIVATE HOUSEHOLDS. W. H. Simonds and A. Stewart.
PREMATURE DISABLEMENT AND DEATH AMONG POST OFFICE WORKERS. C. G. Roberts and D. D. Reid.
PREMATURITY AND PAID WORK DURING PREGNANCY. R. Illsley, W. Z. Billewicz, and A. M. Thompson.
A SURVEY OF MENTAL HOSPITALS AND MENTAL DEFICIENCY INSTITUTIONS IN THE BIRMINGHAM REGION. II. MENTAL DEFICIENCY INSTITUTIONS. K. W. Cross.
ADMISSIONS TO SCOTTISH MENTAL HOSPITALS IN THE LAST HUNDRED YEARS. D. Cameron.
CURRENT DIFFERENTIAL INFANTILE MORTALITY IN ENGLAND AND WALES. W. Taylor.
CHANGING PATTERN OF MORTALITY IN ENGLAND AND WALES. II. MATERNAL MORTALITY. W. Taylor and M. Dauncey.
COMPARATIVE FERTILITY IN THE LOCAL GOVERNMENT AREAS OF ENGLAND AND WALES, 1951. W. Taylor.
A NOTE ON THE SEX DISTRIBUTION OF SIBS. W. Taylor.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

Journal of Neurology, Neurosurgery and Psychiatry.—The new issue (Vol. 17, No. 4) is now available. The contents include:

FOCAL CEREBRAL AND CEREBELLAR ATROPHY IN A HUMAN SUBJECT DUE TO ORGANIC MERCURY COMPOUNDS. Donald Hunter and Dorothy S. Russell.
THE ABSORPTION AND EXCRETION OF RADIOCOPPER IN HEPATO-LENTICULAR DEGENERATION (WILSON'S DISEASE). W. B. Matthews.
ADRENALINE AND NORADRENALINE IN CEREBROSPINAL FLUID. H. Weil-Malherbe and D. W. Liddell.
THE TREATMENT OF MANIC PSYCHOSES BY THE ADMINISTRATION OF LITHIUM SALTS. M. Schou, N. Juel-Nielsen, E. Strömgren, and H. Voldby.
THE SEQUELAE AND SHORT-TERM PROGNOSIS OF ATTEMPTED SUICIDE. I. R. C. Batchelor and Margaret B. Napier.
THE EFFECT OF TEMPORAL LOBECTOMY UPON TWO CASES OF AN UNUSUAL FORM OF MENTAL DEFICIENCY. D. W. Liddell and D. W. C. Northfield.
PATHOLOGICAL FINDINGS IN TEMPORAL LOBE EPILEPSY. Alfred Meyer, Murray A. Falconer, and Elisabeth Beck.
THE RETICULAR PERIVASCULAR TISSUE OF THE CENTRAL NERVOUS SYSTEM. J. W. Millen and D. H. M. Woollam.
CASE REPORT: PRENATAL OCCLUSION OF THE INTERNAL CAROTID ARTERY. R. M. Clark and E. A. Linnell.
CASE REPORT: HAIRY TERATOMATOUS CYST IN THE OCCIPITO-CEREBELLAR REGION. S. Obrador.
PERIARTERITIC LESIONS OF THE CAROTID SIPHON WITH THE CLINICAL FEATURES OF A CAROTID INFRACLINOIDAL ANEURYSM. Eduardo Tolosa.
INTRAMEDULLARY SPINAL ABSCESS. J. E. M. Dutton and G. L. Alexander.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Sunday, December 5

SIGERIST SOCIETY.—At Bedford Hotel, Southampton Row, W.C., 3 p.m., lantern-slide lecture by Dr. L. Crome: Recent Medical Visit to the U.S.S.R.

Monday, December 6

CAMBRIDGE UNIVERSITY.—At Department of Pathology, Tennis Court Road, 4.30 p.m., Dr. H. Lisco (Chicago): Studies on Tumour Induction with Radioactive Substances.
INSTITUTE OF CARDIOLOGY.—9.30 a.m., Sir John Parkinson: Heart Block.
●INSTITUTE OF NEUROLOGY.—5.30 p.m., Dr. S. Nevin: Exophthalmos.
●INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Queen Charlotte's Maternity Hospital, 4.30 p.m., Mr. J. A. Stallworthy: Trial of Labour.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—4 p.m., Dr. Donald Hunter: Hazards of Handling Toxic Substances in Industry.

Tuesday, December 7

BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Professor F. Bergel: Some Chemical Aspects of Abnormal Growth.
ILFORD MEDICAL SOCIETY.—At King George Hospital, Ilford, 8.45 p.m., Professor Ian Aird: Siamese Twins (with a film).
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. P. D. Samman: Reticuloses.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., FitzPatrick Lecture by Dr. C. E. Newman: Evolution of Medical Education in the Nineteenth Century.
ST. MARY'S HOSPITAL MEDICAL SCHOOL.—5 p.m., Mr. John Gardner: Medico-Legal Aspects of Obstetrics and Gynaecology.
WEST END HOSPITAL FOR NEUROLOGY AND NEUROSURGERY.—5.30 p.m., Mr. I. R. McCaul: Investigation of Cerebral Tumour.

Wednesday, December 8

HARVEIAN SOCIETY OF LONDON.—At 11, Chandos Street, W., 8.15 p.m., Dr. D. H. Fulton: Inquests 100 Years Ago; Dr. M. C. W. Long: Value of Routine Medical Examination.
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. R. W. Riddell: Treatment of Fungous Infection.
INSTITUTE OF UROLOGY.—4.30 for 5 p.m.: Dr. J. J. Stevenson: *X*-rays.
MIDDLESEX COUNTY MEDICAL SOCIETY.—At West Middlesex Hospital, Isleworth, 3.30 p.m., meeting.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—2 p.m., Dr. R. E. Davies: Gastric Secretion.
ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—5 p.m., Morison Lecture by Sir David K. Henderson: Society and Criminal Conduct.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.—4 p.m., Bradshaw Lecture by Professor Lambert Rogers: Tumours Involving the Spinal Cord and its Nerve Roots.
ST. BARTHOLOMEW'S HOSPITAL.—At Clinical Lecture Theatre, 5 p.m., Kettle Memorial Lecture by Professor E. J. King: Infective Experimental Pneumoconiosis.
ST. MARY'S HOSPITAL MEDICAL SCHOOL.—5 p.m., lecture-demonstration in psychiatry by Dr. D. F. O'Neill.

Thursday, December 9

ALFRED ADLER MEDICAL SOCIETY.—At 11, Chandos Street, W., 8 p.m., Dr. J. H. Gould: Some Ascertainable Physiological Co-ordinates of Psychogenic Illness.
BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Professor A. Haddow: Theory and Application of the Nitrogen Mustards.
HONYMAN GILLESPIE LECTURE.—At University New Building, Edinburgh, 5 p.m., Professor R. V. Christie: Dyspnoea.
RONKSWOOD HOSPITAL, Worcester.—3.30 for 3.45 p.m., discussion to be opened by Dr. C. F. J. Cropper and Mr. P. W. Houghton: Treatment of Hypertension.
ROYAL ARMY MEDICAL COLLEGE.—5 p.m., Sir Charles Dodds, F.R.S.: Impact of Organic Chemistry on Medical Practice.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., FitzPatrick Lecture by Dr. C. E. Newman: Evolution of Medical Education in the Nineteenth Century.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 p.m., Hunterian Lecture by Professor K. Harrison: Study of Ectopic Mixed Salivary Tumours.
ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W., 7.30 p.m., Professor George Macdonald: Medical Implications of the Volta River Project.
ST. ANDREWS UNIVERSITY.—At Physiology Department, Medical School, Small's Wynd, Dundee, 5 p.m., Mr. A. Dickson Wright: Sciatica of the Arm.
ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.—5 p.m., Dr. Desmond Curran: psychiatry demonstration.

Friday, December 10

●INSTITUTE OF DERMATOLOGY.—5.30 p.m., clinical demonstration by Dr. W. N. Goldsmith.
INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., clinical demonstration by Dr. N. C. Oswald.
INSTITUTE OF LARYNGOLOGY AND OTOLOGY.—3.30 p.m., Miss Edith A. M. Whetnall: Management of Deafness in Children.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—(1) 12 noon, Professor R. Platt: The Fundus in Hypertension. (2) 2 p.m., Mr. L. P. Le Quesne: Management of Pyloric Stenosis.
●ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—5 p.m., Dr. J. Basil Rennie: The Liver and Portal Hypertension.
ROYAL MEDICAL SOCIETY, Edinburgh.—8 p.m., Debate—Motion: That Women Should be Admitted to Membership of the Royal Medical Society.
SOCIETY FOR CULTURAL RELATIONS WITH THE U.S.S.R.—8.15 p.m., Mr. A. Ruscoe Clarke: Current Trends in Soviet Medicine.

Saturday, December 11

SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY.—At Guy's Hospital Medical School, 10.15 for 10.45 a.m., Sir Russell Brock: Spontaneous Pneumothorax; Dr. K. S. Maclean: Recent Work on Chemotherapy in Pulmonary Tuberculosis; Mr. R. H. F. Brain: Some Surgical Problems in Primary Tuberculosis; radiological demonstration by Dr. J. R. Dow: Allergic Conditions of the Lungs.

APPOINTMENTS

ALFORD, KENNETH FIELD, M.B., Ch.B., D.P.H., Medical Officer of Health and Principal School Medical Officer for the County of Norfolk.
CURRANT, E. JAMES, M.B., B.Chir., Medical Superintendent of Dr. Barnardo's Australasian Hospital, Barkingside, and John Capel Hanbury Hospital, Woodford Bridge, Essex.
FIELDING, WILLIAM, M.D., D.P.H., Medical Officer of Health and Principal School Medical Officer, Bournemouth County Borough.
HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—M. J. Simpkiss, M.B., Ch.B., M.R.C.P., Medical Registrar and Pathologist; Pamela M. Hellings, M.B., Ch.B., F.F.A.R.C.S., D.A., Resident Anaesthetist; B. Blackenburg, M.B., Ch.B., D.A., Junior Resident Anaesthetist; M. H. Schnier, M.B., B.Ch., M.R.C.P.Ed., D.C.H., House-physician; Merlyn J. McCulloch, M.B., B.S., House-surgeon to Orthopaedic and Plastic Departments; P. A. Ring, M.B., B.S., F.R.C.S., Part-time Orthopaedic Registrar; W. A. Cochrane, M.D., Assistant Medical Registrar.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Bintcliffe.—On October 22, 1954, at Bexhill, Sussex, to Betty (formerly Lewis), J.P., wife of Eric Bintcliffe, M.B.E., M.S., F.R.C.S., a daughter.
Lichter.—On September 16, 1954, at Johannesburg, South Africa, to Heather (formerly Lloyd), wife of Mr. A. I. Lichter, F.R.C.S., twin sons—David and Jonathon.
Maxwell.—On November 10, 1954, at St. Mary's Hospital, London, W., to Joan, wife of Dr. W. M. Maxwell, a second son—Richard Jackson.
Newns.—On November 3, 1954, at the Jessop Hospital, Sheffield, to Patricia, wife of George R. Newns, M.B., M.R.C.P., a daughter—Mary.

DEATHS

Burns.—On November 8, 1954, in hospital, William James Burns, M.B., Ch.B., F.R.C.P.Ed., of 103, St. Johns Road, Edinburgh, formerly of Dalrymple, Ayrshire.
Butler.—On November 13, 1954, at 1, Ian Court, Western Lawns, Hove, Sussex, Edwin Butler, L.R.C.P.&S.Ed., L.R.F.P.S., aged 66.
Dickson.—On November 25, 1954, at 11, St. George's Road, St. Margaret's, Middlesex, William Elliot Carnegie Dickson, M.D., F.R.C.P.Ed., aged 76.
McKeag.—On October 17, 1954, Robert Humphreys McKeag, M.B., B.Ch., F.D.S. R.C.S., of Ceylon.
Robinson.—On October 21, 1954, at Port Elizabeth, South Africa, Francis Harry Robinson, M.B., B.Ch., D.O.M.S., formerly of Johannesburg.
Ryner.—On November 3, 1954, in hospital, Eastlyn Reymod Ryner, M.B., Ch.B., formerly of 185, Albert Road, Farnworth, Lancs, aged 67.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Meat Tenderizers

Q.—*Is the basis of the so-called meat tenderizers a proteolytic enzyme? In pre-war years there was an extract of either pawpaw or pineapple juice sold on a commercial basis which had the effect of turning the toughest meat into a succulent steak. Is this preparation still on the market, and, if so, where can it be obtained?*

A.—Meat tenderizers based on proteolytic enzymes, such as papain from papaya and bromelin from the pineapple, were originally used by natives of Central and Southern America. They are not much used in this country. In hotels and other large establishments, however, beef is often "tenderized" by storage for some weeks at 0° C. Mechanical tenderizers, which prick the meat, are also used. Papain may be obtained from British Drug Houses, Ltd. A tough steak may be softened by slitting down the middle, sprinkling in papain, closing the pieces together, and allowing the steak to stand in a warm place until the enzyme takes effect.

Ownership of Operation and Necropsy Specimens

Q.—*It has been claimed that a pathological specimen removed at operation or necropsy belongs to the patient or his successors and cannot be preserved by a hospital without the owner's permission. What is the law in this matter?*

A.—I cannot give an authoritative opinion on the ownership of pathological specimens taken at operation or necropsy. There is legal authority for the statement that "there is no property in a dead body; therefore, no corpse or part of a corpse can be owned by or belong to anyone; on the other hand, the executor of a dead subject has a right to the custody of the body until it is properly buried." It has also been decided, as a matter of policy, "that the consent of the executor or next of kin should be obtained before a post-mortem examination is performed"—that is, in the absence of a coroner's order or other legal authority for post-mortem examination.

Finally, pathologists without any legal sanction have usually considered that the consent to perform a post-mortem examination extends to the removal of any specimen of pathological interest. Similarly, when a patient consents to undergo an operation, it is generally understood that, unless he indicates otherwise in advance, he agrees to the disposal by the method usually adopted of any excised tissue, whether this be by incineration, by the preparation of a pathological specimen, or otherwise.

Detection of Threadworms

Q.—*What is the "sellotape" technique for the detection of threadworms?*

A.—Strips of sellotape of a length and breadth slightly less than those of a microscope slide are applied to the perianal region with the adhesive surface in contact with the skin. They are removed after a few seconds and are then stuck to microscope slides and examined for ova. No staining is necessary. As the female worms usually deposit their eggs on the perianal skin during the night a search for eggs is most likely to be successful if carried out as soon as possible after the patient has woken in the morning.

Benefits and Hazards of B.C.G.

Q.—*What degree of protection may be expected from B.C.G. vaccination? What are the possible hazards of B.C.G. vaccination, and how serious are they?*

A.—Few carefully controlled trials of B.C.G. have yet been carried out. One of the best known is Aronson's study on North American Indians.[1] The individuals were aged 1 to 20 years when vaccinated, and there were careful controls allotted at random. Among 1,551 vaccinated there were 6 deaths from tuberculosis; among 1,457 controls 53 died from tuberculosis. Among 123 newborn infants vaccinated there were no deaths from tuberculosis, while 4 deaths occurred among 139 controls. Another well-controlled trial was that of Rosenthal and his colleagues in Chicago. In the follow-up of 10 years there were 3 cases of tuberculosis and 1 death among 1,204 vaccinated compared with 23 cases and 4 deaths in the controls.

The hazards of B.C.G. vaccination are unimportant. In a high proportion of cases the small nodule at the site of vaccination will have a slight discharge. This should be regarded as part of the normal reaction and not as a complication. The draining lymph nodes are normally enlarged, but in a small proportion of cases an abscess may form. This is usually painless but may require aspiration. It is much less common when the vaccination is carried out on the arm than when it is carried out on the buttock or leg, especially in infants. There are no other significant complications. Further details may be obtained in *B.C.G. Vaccination in Theory and Practice*, by K. Neville Irvine (Blackwell Scientific Publications, Oxford, 1949).

REFERENCE

[1] *Amer. Rev. Tuberc.*, 1948, **58**, 255.

Length of Convalescence after Hernia Operation

Q.—*I have as a patient an active healthy man of 46 who has recently had an operation for a right inguinal hernia. The scar healed well by first intention. He is anxious to resume his normal life as soon as possible. When can he safely take up gardening (with digging and heavy lifting), driving a car, and playing a trombone?*

A.—While it is often desirable to give dogmatic advice to patients, it is not easy to give completely consistent and rational replies to the various points raised by the questioner. There is also some difference of opinion among surgeons on these issues. The sound healing of the hernial site depends upon the physique and general health of the patient, the absence of cough and abdominal distension, the type of hernia, the local state of the tissues, and the absence of infection. The questioner provides answers to the first and last points, and, if we assume that the patient had an indirect sac with sound local tissues, the following advice can be given.

Digging and heavy lifting will expose the patient to the biggest strain and should not be undertaken for two months. At the same time, the intelligent patient can gradually "limber up" to full activity of this kind from the sixth week. Most patients find that they can drive a car within four to six weeks, and there are no medical objections to this (use of the crank-handle should be avoided). The hernial site is well protected when the patient is sitting, and neither the exertions of driving nor playing the trombone should expose the repaired tissues to any serious strain.

If the patient has had a direct hernia with poor tissues to the posterior wall of the canal, or if there was an indirect sac with a badly stretched internal ring and thinned out transversalis fascia, there is good reason for being more cautious in allowing return to full activity. Three months should elapse before really heavy work is begun, with proportionately longer time for the other activities mentioned. If there is any doubt about the actual operative findings, and it should be remembered that there is a very great difference between many herniae of apparently similar clinical

type and degree, it is wise to inquire more of the surgeon who performed the operation.

While the presence of sepsis, abdominal distension, or cough in the immediate post-operative period may all be factors which play some part in encouraging a recurrence, it is generally unsound to counsel patients to "go easy" or take a lighter job. Recurrences do not depend *only* upon such factors, and, with few exceptions, it is generally wiser not to be over-cautious in one's advice.

Pain in the Neck during Coitus

Q.—*A married man, aged 50 years, experiences excruciating pain in the nape of the neck at the moment of ejaculation. This first occurred several months ago and recurs whenever he has intercourse. The pain is so acute that he is now determined never again to perform the act unless he can be assured that the condition will not recur. The pain arises as an acute stab in the nape of the neck and spreads straight up the centre of the scalp, where it extends fanwise to behind the eyeballs. The pain lasts from two to three hours, during which time it is constantly present, and then gradually eases off. The pain appears to be within the cranial cavity. There has never been a head injury or intracranial disease of any kind whatsoever. What is the cause of the pain?*

A.—It is difficult and perhaps inadvisable to hazard a snap diagnosis on the data provided. Two suggestions—and they can be no more than suggestions—can be offered. It is stated that the pain is intracranial, and it is possible that it is the result of the rise of blood pressure occurring during coitus. This has occasionally been so marked as to be followed by the accident of cerebral haemorrhage. It would be helpful to know whether the blood pressure is raised in this patient or not. The other possibility is functional pain. Husbands who are finding difficulty in fulfilling their obligations as husbands sometimes save face by developing a pain which explains and justifies their failure. Is there any indication that this patient has had recent difficulties of this kind?

Post-herpetic Neuralgia

Q.—*I have a patient who has been suffering from intractable headaches of the post-herpetic type. He recently suffered a severe attack of herpes of the forehead and scalp, including ulceration of the cornea. What treatment is likely to help him?*

A.—Post-herpetic neuralgia is a difficult condition to treat. In some cases it wanes spontaneously in the three months after the acute attack of zoster, but, especially in the elderly, it may persist, accompanied by a tendency to depression which aggravates the pain. The local application of procaine ointment (1%) and of warmth is sometimes beneficial. *X*-radiation of the Gasserian ganglion, if carried out within a few months of the acute infection, may give relief. Alcohol injection of the ganglion or section of its sensory root should not be performed, as they aggravate the symptoms by adding anaesthesia to the pain. In certain cases when the severity and persistence of the pain and the depressive reaction indicate it, prefrontal leucotomy is justified as an alternative to medication with morphine or other drugs of addiction.

Ovulation after Abortion

Q.—*How soon after an uncomplicated abortion is ovulation resumed?*

A.—Reliable scientific evidence on this point is, for obvious reasons, not easy to obtain, but such as is available is reviewed by A. Sharman in *Fertility and Sterility*, 1951, **2**, 371. After abortion, and especially abortion occurring in the early months of pregnancy, menstruation is usually resumed within six weeks, and often occurs approximately four weeks after abortion is complete. Endometrial biopsies and other tests indicate that the first menstruation is ovular in 70–80% of cases. If the comparatively few women whose resumption of menstruation is delayed are excluded, it follows that approximately 70–80% of women probably ovulate within four weeks of abortion, and often as early as two weeks. Sharman did not find evidence of anovular menstruation later than seven weeks after abortion, although one of his patients who did not menstruate until the sixteenth week was shown not to ovulate until the eleventh week.

Vitamin A and Acne

Q.—*Is vitamin A of value in the treatment of acne vulgaris? If so, what regimen is recommended?*

A.—Benefit has been reported from the administration of vitamin A, but most observers have failed to confirm the suggestion. It was said that Eskimos, whose intake of vitamin A is high, had little or no acne. Experimental attempts to produce acne or any other skin lesions by deprivation of vitamin A have been unsuccessful.

NOTES AND COMMENTS

Treatment of Recurrent Boils.—Dr. E. W. PROSSER THOMAS (London, W.1) writes: Whether or not there is any predisposing cause, such as diabetes, anaemia, or a septic tooth, as mentioned in your answer ("Any Questions?" October 30, p. 1060), furunculosis is due directly to seeding of staphylococci from one hair-follicle to another, and external measures to try to prevent this are essential. The most effective method of lowering the population of surface staphylococci is by repeated washing with 70% alcohol, and this should be carried out for five minutes daily for at least a week and followed each time by painting any boil and the surrounding skin widely with 1% aqueous gentian violet. Boils often recur constantly in a localized area, such as the forearm or the back of the neck, in which case the whole region should be dealt with in this manner. Hot poulticing in any form should be avoided, as it simply macerates the skin and leads to satellite boils. I disagree with your advice to take a daily bath, at any rate if boils are widespread, as reinoculation of cocci occurs, among other things, via towels, and consequently bathing should be restricted for the time being.

OUR EXPERT writes: The views of your correspondent are in agreement with those expressed in the answer except in regard to daily baths. The reason for this disagreement (reinoculation from towels) involves the same principle that leads us to advocate baths—namely, to lowering the population of cocci on the skin surface. The whole question was dealt with fully in a fairly recent Refresher Course article on recurrent boils (March 28, 1953, p. 721).

Correction.—We regret that in the annotation about the Epsom College Centenary Appeal in last week's *Journal* (p. 1280) Mr. John Propert's name was wrongly spelled as Probert.

Refresher Course Books.—Copies of the first two volumes of collected articles from the Refresher Course for General Practitioners published in the *Journal* are still available at 25s. (postage 1s.) each. The first volume contains 55 articles and the second 60. Each article has been revised and brought up to date by its author.

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